NBS 50

NAVY DEPARTMENT
BUREAU OF SHIPS

ROUTE SLIP AND BRIEF

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DATE RECEIVED

SERIAL NO. [redacted]

ENCLOSURES	FILE	CROSS FILES	FILE NOS.
HW	ALG		C-Qm/Seattle-Tacoma
SC	DATE 11/19		S-13(4)

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NAVY DEPARTMENT
BUREAU OF SHIPS

ROUTE SLIP AND BRIEF

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768	ABS	9/2/42	Original O.N.I. route sheet requested return to Op. 30. See also stamp on cover requesting routing to 20 S. ABS
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ENCLOSURES	FILE	CROSS FILES	FILE NOS.
HW	ABS		C-2 my/Seattle Tacoma
SC	DATE 9/2/42		SB. Corp (4)

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NAVY DEPARTMENT
BUREAU OF SHIPS

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Date Received

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SC	Date 9/28		

NAVY DEPARTMENT
BUREAU OF SHIPS

ROUTE SLIP AND BRIEF

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768			Please initial Operations green route slip attached in order to return this material to them. A. B. Buell 2nd

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NAVY DEPARTMENT

OFFICE OF CHIEF OF NAVAL OPERATIONS

Date 8/11, 1942

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From— To—

☐ 10 Chief of Naval Operations ☐
☐ 10A Aid to Chief of Naval Operations ☐
☐ 10B Administrative Aid to Chief of Naval Operations ☐
☐ 11 Assistant to Chief of Naval Operations ☐
☐ 12 Director War Plans Division ☐
☐ 13 Director Central Division ☐
☐ 14 Director Interdepartmental Communication Liaison ☐
☐ 15 Director Naval Reserve Policy Division ☐
☐ 16 Director of Naval Intelligence 2 ☒
☐ 20 Director of Naval Communications ☐
☐ 21 Director Inspection Division ☐
☐ 22 Director of Fleet Training ☐
☐ 23 Director Fleet Maintenance Division ☐
☒ 30 S-NR Director Naval Districts Division ☐
☐ 38 Director Ships Movements Division ☐
☐ 18A Chief Clerk, Naval Operations ☐
☐ S-C File Room ☐
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☐ Bu Ships 1 ☐
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☐ For comment or recommendation.
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DISTRICT SECURITY OFFICE

34960

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THIRTEENTH NAVAL DISTRICT

PRELIMINARY INTERNAL SECURITY AND PASSIVE DEFENSE SURVEY

SUBJECT: SEATTLE-TACOMA SHIPBUILDING CORPORATION (Tacoma Division)
Foot of Alexander Avenue, Tacoma, Washington

REPORT MADE AT: Seattle, Washington DATE: 1 June 1942

REPORT MADE BY: Haines B. Gaffner, Civilian Agent

PERIOD COVERED: 4 - 22 May 1942 STATUS OF CASE: Pending

ORIGIN OF CASE:
AstSecNav supplemental list "Private Commercial Plants of Importance to Naval Procurement" dated 1 June 1942

ENCLOSURES: Preliminary Surveys and Recommendations. Exhibits A to T and Photographs 1 to 28 inclusive.

COPY TO: WCNO (1)
ComSWNI (1)

SOURCE FILE NO. A16-1/QM(43)

SYNOPSIS:

This report covers the "Tacoma Division" activity of concern, which [illegible] a large shipbuilding plant known as the "Seattle Division" at Seattle, Washington. It is a wholly owned subsidiary of Todd Shipyards Corporation of New York.

Plant construction was started in 1939; expansion has been practically continuous since that date and is still in progress. Since the first part of [illegible] plant expansion has been under U. S. Maritime Commission Facilities Contract MCc-1951 at present in the amount of $1,570,400, which amount it is reported will be considerably increased in near future.

On 1 May 1942 shipbuilding construction of C-3 type cargo vessels for the Maritime Commission under Contract MCc-1065, 1188, 1189, and 1516 was taken over by the Navy Department (facilities are still under U. S. Maritime Commission administration). The plant now has Navy Contracts NObs-180 (under DuShip letter of intent dated 27 April 1942) for conversion and construction thirty-six C3 type AVG and BAVG Aircraft Escort Vessels at an estimated cost of over $5,000,000 each and NOd-1760 dated 3 March 1941 for construction of five AOG type gasoline tankers at an estimated cost of $2,120,000 each. These contracts are on a cost-plus-a-fixed-fee basis; costs are only estimates but indicate Navy contracts amounting to a total of approximately $200,000,000 in force.

Notwithstanding the lengthy list of recommendations, one should not overlook the fact that the plant is a good shipbuilding operation structurally and has made material progress in development of Internal Security and Passive Defense measures. The recommendations were prepared from a standpoint of supplementing this brief preliminary report and outlining a comprehensive program toward a high degree of security.

COMMENT AND RECOMMENDATIONS: Recommendations delivered 20 June 1942 by H.B.Gaffner and Lt. Comdr. O.W.Fisher, Ast.DSecO, and discussed with: Lt. W.W.Wales, acting SOS(Tacoma) and Mr. W.L.Green, General Manager, and Mr. H. Purcell, Supt. Official in Charge Int. Sec. Pas. Def. Program

APPROVED:
Z.E. BRIGGS
Captain, U.S.Navy

O.W. FISHER
Lt.Comdr., USNR
by direction

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INDEX OF EXHIBITS

EXHIBIT (A) - U. S. Maritime Commission letter of 28 April 1942 indicating shipbuilding contracts taken over by Navy Department.

EXHIBIT (B) - U. S. Maritime Commission data of 30 March 1942 concerning Air Reduction Co., Inc. - Oxygen Facilities on plantsite.

EXHIBIT (C) - Subcontractor "Purchase Order Contract" form.

EXHIBIT (D) - Hull "Building Schedule" revised 11 May 1942.

EXHIBIT (E) - "Notice" to employees concerning proof of citizenship requirements.

EXHIBIT (F) - Types of citizenship proof accepted.

EXHIBIT (G) - Fire Insurance Report covering Seattle-Tacoma Shipbuilding Corp.

EXHIBIT (H) - Fire Insurance Report covering Peterman Manufacturing Co. (This plant now being acquired and incorporated in Seattle-Tacoma Shipbuilding Corp. operation).

EXHIBIT (I) - Fire Insurance "Plot Plan" of plantsite.

EXHIBIT (J) - Yard and Facilities Layout, Dwg. P-198, of plantsite.

EXHIBIT (K) - "Fire Inspection Report" form for hulls being outfitted.

EXHIBIT (L) - "Lost Badge" Affidavit form.

EXHIBIT (M) - Employees Application, Personal History, Record Card and Separation Notice forms.

EXHIBIT (N) - Visitor, Truck, Pass-out and Gate Register samples.

EXHIBIT (O) - Identification Badge, Special Business Pass, Package Pass and Automobile Identification Plate samples.

EXHIBIT (P) - Sample of various forms used to record distribution of blueprints and plans.

EXHIBIT (Q) - "The Rudder", 8 page plant newspaper issued monthly.

EXHIBIT (R) - "Tacoma Street Map" showing locality of plantsite and miscellaneous storage warehouses used by concern.

EXHIBIT (S) - "Safety Code" Rules and Regulations.

EXHIBIT (T) - Seattle-Tacoma Shipbuilding Corp. Reports Nos. 5, 9 and 35 issued weekly denoting status of vendor deliveries.

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PRELIMINARY INTERNAL SECURITY SURVEY

OF

SEATTLE-TACOMA SHIPBUILDING CORP.
(Tacoma Division)
Foot of Alexander Avenue
Tacoma, Washington

1 June 1942

Arrangements for the inspection of this operation were made with MR. W. L. GREEN, Vice President and General Manager. During the course of inspection all officials and employees were helpful and cooperative.

The Federal Bureau of Investigation issued a Survey Report on this plant on 8 April 1941 and Reinspection Reports on 22 July and 7 August 1941. These inspections were made when the operation was comparatively small; since then the plant has been extensively enlarged. Based upon the original survey a recommendation letter dated 5 June 1941 was sent the management. While many of the Federal Bureau of Investigation recommendations contained in that letter have been complied with, a large number have been only partially corrected or not carried out in a fully effective manner. These are being resubmitted with other deficiencies disclosed by the present inspection.

A comprehensive set of recommendations prepared from the standpoint of supplementing and forming a part of this brief report is included. It will be observed in the recommendations that items wherein precautions do not fully measure up to "Minimum General Security Measures" are preceded by an asterisk (*), thereby indicating present conditions with regard to these general measures.

GENERAL

The Seattle-Tacoma Shipbuilding Corporation was incorporated in the State of Washington on 7 July 1939 for the purpose of handling Navy and Maritime Commission shipbuilding work with an original capital of $1,500,000, which was increased to $2,500,000 in September 1940 and $3,000,000 in March 1942. Since the latter date the company has been a wholly owned subsidiary of Todds Shipyards Corporation of New York. The majority of directors and officers are, or were formerly associated with that concern.

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The plant under survey is known as the "Tacoma Division", while the Seattle operation is known as the "Seattle Division."

Officers of the corporation are as follows:

R. J. LAMONT, Pres., also Pres. of Todd Seattle Drydocks, Inc. and Vice Pres. of Todds Shipyards Corp.
WALTER L. GREEN, Vice Pres., Gen. Mgr. of Tacoma Div.
O. A. TUCKER, Vice Pres., Gen. Mgr. of the Seattle Div.
JOHN D. REILLY, Vice Pres., also Pres. of Todd Shipyards Corp.
R. L. DALTON, Sec. and Asst. Treas.
C. F. STRENZ, Treas., also Treas. Todd Shipyards Corp.
J. B. CONNELLEY, Asst. Sec. (Seattle)
HENRY L. ANDERSON, Asst. Sec. (Tacoma)
E. P. ENFER, Asst. Sec., also Comptroller Todds Shipyards Corp.

Directors of the Corporation are as follows:

R. J. LAMONT, Seattle
O. A. TUCKER, Seattle
W. L. GREEN, Tacoma
LAWRENCE BOGLE, Attorney, Seattle
JOHN D. REILLY, New York
J. HERBERT TODD, New York
H. G. HILL, Brooklyn, N. Y.
JOSEPH HAAG, Jr., New York

Additionally, the Tacoma Division has the following officials:

H. F. LALLEY, Asst. Gen. Mgr.
C. O. NELSON, Works Mgr.
C. D. GILLET, Chief Engr.
G. J. ACKERMAN, Production Mgr.
H. J. FLANDERS, Purchasing Agent
J. B. BARR, Comptroller
Wm A. HERZOG, Public Relations and Labor Director
RALPH REED, Employment Manager
HOMER PURCELL, Plant Superintendent (official in charge of Internal Security and Passive Defense)
GEORGE HAMILTON, Chief of Guards
ALBERT ST. PIERRE, Fire Chief
RICHARD BRANDON, Safety Inspector

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FACILITIES DATA

Ownership of facilities is a rather complex situation. It is understood that Todds Shipyards Corporation owns all land comprising present plantsite and leases same to Seattle-Tacoma Shipbuilding Corporation with approval of Maritime Commission and Navy. The original plant of two shipways was completed about April 1940, a third shipway was added in May 1941. Original units consisting of steel shop "A", mold loft building, sheet metal shop, shipways 1, 2 and 3, outfitting piers 1 and 2 and hospital-inspector building (formerly main office) are owned by the STSC. Expansion was commenced by USMC during the first part of 1941, it has been continuous since that date and is still in progress. Original USMC facilities Contract DA-MCc-112 dated 10 May 1941 in the amount of $3,975,000 was changed by Addendum No. 1, dated 8 December 1941 to Contract MCc-1951 and by Addendum No. 2 dated 3 March 1942 was increased $3,595,400; thus USMC Facilities Contract MCc-1951 is now in the amount of $7,570,400, and it is reported this amount will be materially increased in the near future. The USMC therefore owns the balance of facilities not aforementioned under STSC ownership, with certain exceptions such as the main office building and warehouse No. 1, which are said to be owned by STSC, with improvements thereon owned by USMC.

The large door and plywood manufacturing plant of the Peterman Manufacturing Company adjoining the plantsite on the south is being acquired by the USMC; they have been ordered by court action to vacate the premises by 1 June 1942 and it will be incorporated in the shipyard as soon as possible, principally for use as a warehouse and outfitting operations. It is reported the actual purchase cost of this property will probably be set by court proceedings, but that its approximate value is three-quarter million dollars which will be paid by the USMC under an increase in the facilities contract when determined. USMC Addendum No. 2 was to take care of conversion and improvements of this plant, as well as various other enlarged facilities and improvements to the entire property, including erection of a new outfitting wharf 2800 feet in length along the Wapato Waterway as shown on Exhibit (I).

In cooperation with the Air Reduction Co., Inc., the USMC is financing and at the present time erecting an oxygen production facilities plant on a small plot southeast of the Peterman Plantsite - see Exhibit (B) and Exhibit (I).

When the expansion program now under way is completed the plantsite will occupy approximately 136 acres of land divided as follows:

The Present plantsite	84 acres
Peterman plantsite	24 "
Leased parking area southeast of restaurant	10 "
Leased storage yard between Alexander Avenue and Wapato Waterway south of Peterman plantsite to E. 11th St.	18 "
Total	136 "

It is reported that as of 28 February 1942 the STSC actual depreciated building and equipment investment in the property (exclusive of land) was in the amount of $1,711,443.90. In addition they usually carry about $1,500,000 in material supplies which are unassigned to USMC or Navy.

SHIPBUILDING CONTRACTS

During 1941 the concern delivered five C-1 type cargo vessels at a cost of $2,127,000 each to the USMC under Contracts MCc-466 to 470 inclusive. At the present time they are engaged in completing (about 75% completed at date) two C-3 type AP Army Transports at an estimated cost of $6,063,603 for the USMC under Contract MCc-1062 and 1063. C-3 type hull under Contract MCc-1064 has been delivered to the Puget Sound Navy Yard for conversion into an AVG type Aircraft Escort Vessel.

On 1 May 1942 construction of C-3 type cargo vessels for the USMC under Contracts MCc-1065, 1188, 1189 and 1516 was taken over by the Navy Department - see Exhibit (A). Administration of Facilities Contracts remains under USMC. The shipbuilding contracts were superseded by Navy Contract NObs-180 for the conversion and construction of thirty-six C-3 type AVG and BAVG Aircraft Escort Vessels at an estimated cost of over $5,000,000 each. This contract is still under "Letter of Intent" from Bureau of Ships dated 27 April 1942. In addition, they have Navy Contract NOd-1760 dated 3 March 1941 for the construction of five AOG type gasoline tankers at an estimated cost of $2,120,000 each. The contracts are on a cost-plus-a-fixed-fee basis; costs are only estimates but indicate that Navy Contracts in force amount to a total of approximately $200,000,000.

Exhibit (D) is a "Building Schedule" revised 11 May 1942, which shows the type, hull number and scheduled keel laying, launching and delivery dates in connection with the aforementioned vessels. Exhibit (T), STSC Reports Nos. 5, 9 and 35, which are issued weekly, denote the status of vendor deliveries under subcontract work for these vessels.

Navy Contract NOd-1760 is classified "Restricted" and contains a National Defense, Citizenship, Handling of Plans and Confidential Papers, Special Plant Protection, etc., Clauses and other standard provisions. Gibbs and Cox Inc. of New York were originally engineering and design agents for the Aircraft Escort Vessels until the work was taken over by the Navy; it is understood this is now handled by the Puget Sound Navy Yard but that they are still agents for the gasoline tankers and have arranged for a considerable amount of the subcontracting, but most is handled directly by the STSC on "Purchase Order Contract" form Exhibit (C).

PERSONNEL

In October 1941 there were about 2800 employees, January 1942, 6,000 and May 1942, 14,000. At the present time hiring is at a rate of about 3,500 a month with a net gain of about 3,000. By the latter part of this year they expect to have a total of approximately 22,000 employees.

The plant is operating on a full six day per week basis with Sunday activity about 15 percent of that on week days. As of 12 May 1942, exclusive of absentees which were reported to average 5 to 7½%, the total employment distribution was as follows:

	1st. shift 0730 to 1600	Swing shift 1600 to 2400	Graveyard shift 0000 to 0730	Total
Yard	6736	3704	2522 -	12,962
Administrative	653	126	58 -	837
				13,799

All employees have executed "Personal History Form" shown in Exhibit (M) together with other forms pertaining to personnel data. Personal history information is not comprehensive as required nor is the information furnished verified. In the case of administrative personnel a cursory check is made of their qualifications and other workers must have "Union" clearance. Applicants and employees are not otherwise investigated. All employees have been fingerprinted and the cards forwarded to the Federal Bureau of Investigation. Employees names are also checked against lists of "Questionable Individuals" furnished by Supervisor of Shipbuilding as a result of information obtained from the Commandant through the District Intelligence and Civilian Personnel Officers.

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KNOWN ALIEN EMPLOYEES OF SEATTLE-TACOMA SHIPBUILDING CORP. (TACOMA DIVISION)

AS OF 18 MAY 1942

NAME	CLASSIFICATION	ALIEN REG.#	DATE HIRED	NATIONALITY	STATUS FORM NNI-132
ALMANOLLI, Joakko (Jacob A. Ollie)	Chipper	3961297	7-9-41	Finnish	Consent - 1-30-42
ARTER, William	Machinist Helper	4697151	7-16-41	English	Consent - 1-30-42
ALLEGRO, Sam	Laborer	2788806	7-29-40	Italian	Consent - 2-3-42
BISHOP, Percy Humphrey	Punch & Shear Man	3676117	8-6-40	Canadian	Consent - 2-3-42
BURLIN, John Arthur	Welder Helper	2758881	1-7-41	Swedish	Consent 1-30-42
BURLIN, William Gustaf	Slab Helper	2758782	5-20-40	Swedish	Consent 1-30-42
BURK, Arthur Albert	Sheet Metal Worker	5579056	1-10-41	Canadian	Consent - 1-31-42
BOGUE, Arnold N.	Jr. Draftsman	3730955	11-6-40	Canadian	Submitted - 9-24-41
BASSI-Liberato	Laborer	2545712	12-6-40	Italian	Consent - 2-2-42
BURNIE, James Young	Shipfitter Helper	1510506	11-13-40	Scotch	Consent - 2-2-42
CRAIG, Henry Mungo	L.M. Shipfitter	4429041	2-26-40	Irish	Consent - 3-26-42
CARTWRIGHT, Clifford J.	Shipfitter Helper	2726724	8-12-40	Canadian	Consent - 1-30-42
COOPER, Donald Edward	Shipfitter Helper	5552224	8-11-41	Canadian	Consent - 1-30-42
CALVERT, Russell (George Wilson Calvert)	Crane Operator	5491651	9-6-41	Canadian	Consent - 1-31-42
CRAIG, David	Shipfitter Helper	2457500	4-1-40	Irish	Consent - 2-3-42
CARTWRIGHT, James	Shipfitter	5583074	8-12-40	Canadian	Consent - 2-6-42
CARTWRIGHT, William O.	L. M. Shipfitter	4358124	7-18-41	Canadian	Consent - 2-4-42
CARTWRIGHT, Glen Thomas	L. M. Loftsman	3420218	3-18-40	Canadian	Consent - 1-31-42
COSTANTI, Louis James	Shipwright	1240551	7-17-40	Canadian	Consent - 1-30-42
FAIR, Harold George	Welder	5544545	9-8-41	Canadian	Consent 2-3-42
FRIESEN, Clive Irene	Key Punch Operator	2844664	6-6-41	Canadian	Consent 1-31-42
FAUSKE, Arne Frederick	Slab Helper	3505118	6-27-41	Norwegian	Consent 2-2-42
FILARDO, Filippo	Laborer	1758667	4-15-41	Italian	Consent 2-3-42
FAULK, Leslie Franklin	Shipfitter Helper	5552582	8-25-41	Canadian	Consent 2-2-42
FAUSKE, Gudmond John	Shipfitter Helper	4129622	2-18-41	Norwegian	Consent 2-2-42
FIFE, Wilbert Donald	Rigger	3392143	8-26-40	Canadian	Consent 2-3-42
HOLLAND, Christian G.	Rigger	3961291	9-5-41	Norwegian	Consent 4-11-42
HARKNESS, David R.M.	Shipfitter	1029998	2-3-41	Canadian	Consent 1-30-42
HANSEN, Carl Olaf	Rigger	4559369	9-22-41	Norwegian	Consent 2-28-42
HANSEN, Niels Frederick	Press & Rollman	1668057	8-12-40	Danish	Consent 2-28-42
HERSTAD, Eider Asbjorne	Shipfitter Helper	5652417	8-26-41	Norwegian	Consent 2-2-42
IVERSON, Einar Andvord	Electrician	5295807	10-16-40	Norwegian	Consent 1-31-42

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ALIEN REPORT

NAME	CLASSIFICATION	ALIEN REG.#	DATE HIRED	NATIONALITY	STATUS FROM [illegible]
JOHNSON, Reider	Whirley Operator	2175880	8-14-41	Norwegian	Submitted 10-3-41
JACOBSEN, Niels Jensen	Rigger	1898818	2-14-40	Danish	Consent 3/2/42
JOHNSEN, John Mattias	Crane Operator	Not received	6-9-41	Norwegian	Consent 2-28-42
KAHN, Nikolair Kustaf	Painter	4257520	2-10-41	Finnish	Consent 2-4-42
KOBYLK, John, Jr	Shipfitter Helper	1841573	8-27-41	Russian	Consent 1-30-42
KRANTZ, William	Laborer	4897561	2-27-40	German	Consent 1-30-42
KERR, James	Driller	1517682	10-14-40	British	Consent 2-2-42
KLOSTER, Valentine	Reamer & Driller	Not received	5-6-40	Russian	Consent 3-11-42
LYON, Lyman Ross	Stores Department	1314235	5-4-41	Canadian	Consent 2-2-42
LOAN, Henry Herbert	Machinist	1029999	2-2-40	English	Consent 2-2-42
LLOYD, Murray, Willard	Welder	3865711	7-7-41	Canadian	Consent 1-30-42
LARSON, Anders Isak	Sheet Metal Worker	2714409	10-28-40	Swedish	Consent 2-4-42
LARSON, Sexten Geijer	Sheet Metal Worker	2437502	10-24-40	Swedish	Consent 2-4-42
LABA, Harry (Harry Stone)	Rigger	Not received	9-3-40	Canadian	Submitted 10-1-41
MARTIN, James	Welder	2302357	6-28-40	English	Consent 2-28-41
MLADINEO, Mate	Joiner	2788553	9-23-40	Jugoslavian	Consent 2-4-42
MASON, Thomas	Shipfitter	3055171	1-7-41	English	Consent 2-4-42
McLEOD, Augustus Nelson	Shipfitter	2024500	8-12-40	Canadian	Consent 2-6-42
McLEOD, James W.H.	Shipfitter Helper	5187003	7-8-41	Canadian	Consent 1-30-42
OHR, John William	Rollerman	4487562	7-28-41	Canadian	Consent 1-30-42
PELLE, Herbert Carl	Electrician Helper	3983762	1-17-41	Canadian	Consent 1-31-42
POOLEY, William Harvis	Welder Helper	2844477	1-9-41	English	Consent 3-2-42
PEARCE, Ballington Kilbey	Welding Superintenant	2119202	5-1-40	English	Submitted 10-1-41
PETERSEN, Martin Severin	Laborer	4897564	4-22-40	Danish	Consent 4-23-42
ROOTH, Carl Oscar	Sheet Metal Worker	5364501	10-9-40	Swedish	Consent 2-3-42
RUTZ, Mike	Shipfitter Helper	1597989	6-24-41	Russian	Consent 1-31-42
ROSENOFF, Carl	Sheet Metal Worker	4897548	2-27-41	Russian	Consent 2-3/42
SVENSON, Hemming Ingemar	Machinist Helper	2008724	3-14-40	Swedish	Consent 1-31-42
VIKEN, John Severt	Pipefitter Helper	1830356	12-27-40	Norwegian	Consent 3-2-42
WINGFIELD, Alfred John	Machinist	4282863	7-10-40	English	Consent 2-28-42
WITSER, Charles Adolph	Joiner	1323732	8-19-40	Canadian	Consent 1-30-42
WELTON, Walter John	Welder	1733228	2-19-40	Canadian	Consent 1-30-42
WESTERDAHL, John	Crane Operator	1156228	1-13-41	Swedish	Consent 1-31-42
WICKSTROM, John I.	Painter	2049366	2-3-41	Swedish	Consent 1-30-42

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Employees in vital positions have been requested to execute Personal Security Questionnaire Form NNI-140 to submit to the District Intelligence Officer.

Exhibits (E) and (F) show data pertaining to proof of citizenship requirements. At date it was estimated about 35 percent of the employees had not submitted proof of citizenship, but the Personnel Department was at that time engaged in a complete check with a view toward requiring proof from those who have not submitted it. An applicant is employed if he states he is native born and is usually allowed up to about a month to produce proof of citizenship; owing to the large number of employees hired during recent months the check-back has not been as thorough as it should be and the Record Cards do not precisely denote the type of proof, date submitted and who witnessed same. At date a total of 66 known aliens were employed and data concerning these is in the table on Pages 5a and 5b. As shown, consent to employ from the Secretary of the Navy following submission of Form NNI-132 has been received for the majority.

Naval personnel assigned to the plant have space in the old office building south of the mold loft. At time of inspection the force consisted of a total of about 50 officers, enlisted men and civil service employees. When the office of Supervisor of Shipbuilding (Tacoma) is in full operation and crews are being assigned to ships during final stages of outfitting, it is reported this force will approximate 300 or more.

At time of inspection the USMC had a staff of 40 civil service employees assigned to the plant under direction of the following individuals:

Mr. R. H. Palmer, Resident Plant Engineer in Charge of Facilities.
Mr. H. B. Wilkinson, Resident Auditor.
Mr. David Neilson, Principal Inspector.
Mr. Paul Mulvany, Principal Machinery Inspector.

It was said this staff will be reduced about one-half in the near future when their duties are confined to facilities administration.

HANDLING OF MAIL, VITAL PLANT RECORDS AND CLASSIFIED MATERIALS

Incoming and outgoing mail appears to be handled in a manner similar to common practice in any commercial concern, without the necessary special precautions being taken. An official "restricted" mail room has not been established, clerks have not been investigated as confidential employees and other precautions outlined in the recommendations are not being carried out.

A considerable amount of "classified" material including correspondence, plans and specifications is handled, particularly in the engineering departments. No precise comprehensive system is in effect in connection with the handling, recording and distribution of this matter. In a general way it seems to be handled in a rather haphazard insecure manner not in accordance with Naval requirements. Exhibit (P) shows samples of various forms used to record distribution of blueprints and plans, while the recommendations included as a part of this report go into deficiencies in connection therewith quite thoroughly.

Two fire and burglar resistive reinforced concrete vaults of fairly good design are provided, one in the main office and the other in the old office building. Each of these is two stories in height with a compartment at each floor level. Openings in the vault in the main office are equipped with good vault-type steel doors bearing one-hour fire labels, four-tumbler combination locks with relocking devices, and T-20 burglary classification. Those in the old office vault are equipped old fashioned unlabelled double steel plate vault-type doors, which appear of fair design, and are equipped with four-tumbler combination locks. Filing cabinets of ordinary unlocked and locked type are provided throughout office sections for storage of plant records. No attempt seems in force to require storage of important matter in the cabinets of locked type. No definite record of key distribution for these cabinets or other areas with locked doors is maintained.

The recommendation section also sets forth that plan reproduction work is done at the Graham Blueprint Co. and printing of some confidential data at the Metropolitan Printing Co., outside concerns, located downtown. Recommendations and information in connection with this situation are submitted therein.

PHYSICAL

The plantsite will cover an area of 136 acres. It is located on a peninsula extending north from E. 11th St. and bounded by Commencement Bay on the north, Hylebos Waterway and Alexander Avenue on the east and the Wapato Waterway on the west. The land boundary lines will be equipped with suitable fences having barbed wire on top. Gates and entrances will be at a minimum and supervised by guards when open.

The boundary fence lines, yard areas and building interiors will all be suitably illuminated. Underwharf sections of the boundary lines, which are several thousand feet in length, are not illuminated underneath.

Exhibits (G) and (H) are fire insurance reports covering the property, these furnish considerable pertinent information concerning construction and protection of the plant. A general layout of the plantsite is shown on Exhibits (I) and (J), plot plans of the property, the first is a fire insurance map which shows the general layout of fire protection facilities. The photographic exhibits also show further details with regard to physical conditions and yard layout.

The plant buildings are of good substantial wooden construction, one and two stories in height, with several of large area. Practically all of the buildings are equipped with standard dry pipe automatic sprinkler protection completely supervised by American District Telegraph Co. central station services. The sprinkler systems and fire hydrants are supplied by a looped system of water mains under 96 pounds static pressure at grade and with a capacity of approximately 2400 g.p.m. available on plantsite at 60 pounds residual pressure. A secondary source of water supply consisting of two elevated steel gravity tanks of 250,000 gallons combined capacity elevated 100 feet will be available.

The outfitting wharves, craneways and shipways are heavy plank and timber structures elevated from a foot or so above ground to several feet above tidewater. These structures, with the exception of shipways, are equipped with "AERO" automatic fire alarm service which reports to the ADT central station. An adequate number of ADT private manual fire alarm boxes is distributed on the plantsite; their service also includes compulsory tour watchman stations reporting to central station for supervision of watchman patrol in the yard and buildings.

Fire protection is exceptionally good as a whole including automatic sprinkler and standpipe and hose installations in practically all buildings together with an adequate supply of chemical extinguishers, water pump cans, incendiary bomb stations and other first-aid appliances in accordance generally with standard requirements. Private exterior hydrant protection and public protection is also good. City of Tacoma fire defenses grade third class under National Board of Fire Underwriters classification, a land apparatus station is nearby but the fire boat station is approximately 3 miles distant..

The recommendation section of this report contains several items pertaining to physical and fire protection conditions.

IDENTIFICATION SYSTEM

Exhibits (N) and (O) show the various types of identification and passes in use as well as pertinent remarks in connection with each. All regular employees are issued permanent semi-tamperproof photographic type metal identification badges. Exhibit (I) is a sample affidavit which must be executed in case a badge is lost, but no charge is made for the service and as a result replacements are steadily increasing.

The identification and pass systems contain several weaknesses resulting in ineffectual security in the actual operation. These deficiencies are covered in detail in the recommendations.

GUARD SERVICE

At time of inspection at least 30 guards(including 8 assigned to hulls being outfitted) and watchmen were on duty at all times on the plantsite, plus 11 additional on duty at storage yards and warehouses at miscellaneous locations away from the plantsite. The guards are organized into a semi-military type unit with a Chief, Assistant Chief and 7 Captains. At date the force consisted of 142 men, but later information to the effect that it had been increased to about 175 men and is expected to reach a total of about 200 in the near future has been received. The guards are well distributed at the boundary lines, entrances and within the plantsite providing reasonably effective security. This is with the exception that reserves are needed, or guard shifts should be overlapped at times when regular employees change shifts, so the present practice of removing guards from established posts during shift changes can be corrected.

The guards are non-union and the majority have had previous police experience. About half the force are provided with uniforms and have been registered with the City of Tacoma as "special police". These are armed, additional sidearms and rifles are on order and will be issued to the balance as soon as the Chief feels they are qualified. Regular target practice sessions are held.

At time of inspection the guards were not being investigated before employment, but subsequent information is to the effect that a former city detective has been hired for the purpose of making investigations of all guards and firemen before they are hired. A Fidelity Bond is issued on each guard.

Several improvements in connection with the guard service are outlined in the recommendations.

FIREMAN SERVICE

At time of inspection at least 33 fire guards (including 18 assigned to hulls being outfitted) were on duty at all times on the plantsite. The firemen are a fully paid organization without other duties and include a Chief with 9 assistants designated as Fire Marshals. At date the force consisted of about 110 men, but later information to the effect it had been materially increased and is expected to reach a total of about 200 in the near future has been received. The firemen are distributed on strategic patrol routes on the plantsite and organization is underway to augment the force in emergency by trained volunteers from the regular workmen.

HULLS ON SHIPWAYS AND AT OUTFITTING WHARVES

The recommendation section of this report contains detailed suggested minimum security regulations for protection of vessels afloat being outfitted, covering conditions in this respect. Responsibility for security of vessels afloat changed from the Navy to the Coast Guard at about the time of inspection; however, since recommendations in this respect had been discussed with the management and many acted upon, they were submitted as part of the report after approval of the Captain of the Port, Coast Guard.

With regard to hulls under construction on the shipways, security measures in effect were reasonably good as a whole. Some additional measures are needed and in general they should be gradually increased from the time each keel is laid until the protection approximates that recommended for vessels afloat, when launched.

MISCELLANEOUS STORAGE WAREHOUSES

At time of inspection the matter of storage space for outfitting materials being received was causing considerable concern. It was said to be coming in at the rate of about 400 railroad carloads per month. Although occupancy of the Peterman factory building as a warehouse will relieve the situation, the consensus of opinion was that storage of materials at other locations off the plantsite would necessarily have to be continued. At date materials were being stored at six leased warehouses located as follows:

Warehouse 710 Commerce St. (see photo 20).
Warehouse 414 Puyallup Ave. (see photo 19).
"Associated Wineries" Warehouse, 6200 South Tacoma Way. (see photos 16, 17 and 18).
"Carman Mfg. Co." Warehouse, 801 E. 25th St. (see photos 21 and 22).
"Shaffer Terminal No. 2" Warehouse. (see photos 25 and 26).
"McCormick" Warehouse (see photos 23 and 24).

Exhibit (R) which is a "Tacoma Street Map" shows the location of the plantsite and that of the miscellaneous storage warehouses listed above. Security measures in effect at these warehouses were considered only fair as a whole at time of inspection. The recommendation section of this report through suggested improvements reflects specific deficiencies existing at each location.

CONCLUSION

This plant is a good shipbuilding operation structurally and material progress has been made in the development of an Internal Security Program of definite value. The rapid rate of plant expansion during the last few months and the ever increasing demand for production have necessarily received first emphasis. Security measures are nevertheless receiving more and more attention and are being gradually increased. Continuance of development along the lines outlined in the recommendations should result in a high degree of security.

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PRELIMINARY PASSIVE DEFENSE SURVEY

OF

SEATTLE-TACOMA SHIPBUILDING CORP.
(Tacoma Division)
Foot of Alexander Avenue
Tacoma, Washington

1 June 1942

This inspection was arranged for and made in conjunction with the Internal Security Survey.

GENERAL

Management has received virtually all available Office of Civilian Defense literature on the subject and has made material progress in the organization and execution of a well-developed Passive Defense Program. All initial ordinary steps and the majority of additional recommended measures contained in AstSecNav letter of 3 March 1942, Serial 124802, sent the concern enclosing Navy Department pamphlet entitled "A Typical Passive Defense Plan for an Industrial Plant" have been taken care of satisfactorily, or plans are formulated to do so.

A comprehensive set of recommendations prepared from the standpoint of forming a part of and supplementing this brief report is attached and reference is made thereto for further details in connection with the Program.

WARNING SERVICE

The company has subscribed to receive air raid warnings through facilities of the Telephone Company and Office of Civilian Defense in Tacoma. These warnings are received over a special telephone line with unlisted number to the gate house where a guard is on duty at all times. Instructions for procedure have been promulgated (see photo 7).

ILLUMINATION CONTROL

Two blackout tests were held on 29 April 1942; one on the swing shift at 2130 and the other on the graveyard shift at 0430. In both cases complete blackout is said to have been obtained about 3 minutes

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SPECIAL FIRE FIGHTING EQUIPMENT

As a whole a good supply of sand stations and pack-type 5-gallon pump cans with adjustable spray nozzles has been provided within buildings and on roofs. Safety lines are installed on buildings having balloon type roofs. The equipment should be augmented as outlined in detail in the recommendation section.

CONCLUSION

Development of a Passive Defense Program of definite value is well under way. If present plans for further organization, instruction, training and provision of equipment are carried out a high degree of security will be attained.

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SEATTLE-TACOMA SHIPBUILDING CORPORATION
(Tacoma Division)

INTERNAL SECURITY RECOMMENDATIONS

1 June 1942

At the outset it should be pointed out that while certain specific recommendations are included in this report concerning the expansion program taking in the adjoining Peterman Manufacturing Company, the matter is not gone into thoroughly inasmuch as at the time of inspection the plant had not been vacated. It is assumed equivalent protection measures to those now in effect at the present operation will be extended to the addition when it is occupied.

Items preceded by an asterisk (*) denote wherein present precautions do not measure up generally to "Minimum General Security Measures for the Protection of Commercial Plants of Importance to Naval Procurement", which have been previously furnished the management in correspondence and pamphlet form by the Navy Department.

NOTE: Recommendations Nos. 1 to 7 inclusive dealing with the employment, investigation and handling of personnel are the basic concept of any security program; until they have been thoroughly developed the material measures will not be fully effective.

* 1. Adopt an employment application form to develop all information contained in the above-mentioned standards. Attached is a sample "Personal History Form" which will be of assistance in designing a comprehensive form. The sample is not necessarily all-inclusive and can be expanded to meet the particular needs of the company. The question concerning "race or color" of applicant can be eliminated if desired.

All present employees as well as future applicants should be required to completely execute the new application form.

* 2. Require documentary proof of United States citizenship from all employees and others who frequent the premises, except aliens for whom consent to employ has been received from Secretary of the Navy upon submission of Form NNI-141 (formerly NNI-132). At the time of

inspection it was estimated that approximately 35 percent of the employees had not as yet submitted proof of citizenship, and the Personnel Department was engaged in a check of the employee "card files" with a view toward requiring proof from the balance. This check should be completed as soon as possible and proof required from all.

The present method of hiring an applicant who states he is native born and allowing up to a month or more before citizenship proof must be submitted is unsatisfactory; all future applicants should be required to submit citizenship proof when employed.

The most positive means of proving citizenship is by authenticated birth certificate or naturalization papers; where it is impossible to obtain these, other acceptable means are available; but they should be accepted in approximate order of preference with evidence that the stronger type cannot be obtained being presented before weaker type proofs are allowed. In reviewing the personnel record "card file" it was observed affidavits and other types of weak proof have been accepted in a number of cases and these should be rechecked at the earliest opportunity and more positive proof required. The "card file" should indicate precisely the type of citizenship proof submitted, the date submitted and initials of employee witnessing same. Where affidavits and the like are accepted the personnel file should show the reason why a proof of lesser preference was accepted in each individual case.

3. An investigation should be made of each applicant before he is employed. In addition to conducting a neighborhood inquiry of the applicant's general character and reputation, the investigation should include verification of the information given in the application form. The management may find telephone calls or form letters useful in questioning schools, organizations, and former employers.

The present employees should also be formally investigated; and it is recommended the management first investigate those with whom they are not well acquainted, and then progress to the older and more trusted employees. Regarding the older employees, it is probable much of the information can be verified by reason of association and personal knowledge.

The procedure recommended above should be especially thorough for those persons in vital positions from an internal security standpoint; namely, engineering department employees, confidential clerks

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and stenographers, mail clerks and messengers, guards, firemen, etc. Prompt execution of Personal Security Questionnaire, Form NNI-140, requested by the District Intelligence Office covering these employees will be of assistance in making a thorough investigation in this regard.

* 4. The failure of any employee to report for work at the beginning of his assigned shift should be promptly reported and an inquiry made without delay to determine the reason for his absence. If the explanation obtained is questionable, a prompt investigation should be made to determine his activities during the absence. All information derived from either the inquiry or investigation should be recorded in the employee's personal file.

* 5. A personnel file should be established and maintained for each employee. This file should consist of an individual folder containing the completed application form, the results of the investigation, a record of absences and the reasons therefor, periodic reports concerning the employee's loyalty and efficiency, and any other information deemed pertinent by the management.

During inspection an "envelope type" sample individual personnel file showing pertinent information concerning the employee on a convenient place on the exterior was furnished Mr. Reed and Mr. Anderson. A similar type of individual folder is recommended.

* 6. Conspicuously post excerpts of Federal Espionage and Sabotage Statutes on bulletin boards and elsewhere throughout the plantsite. A supply of posters in this connection were forwarded to Mr. Purcell following inspection, and it is assumed they have already been distributed. In addition, each employee should be required to sign a statement to the effect that he has read and understands the provisions of these statutes.

* 7. It is recommended that a pamphlet, similar to the present "Safety Code" now furnished employees, covering rules and regulations governing other features of their conduct on the premises be prepared and distributed. Such to include in full detail all company rules with regard to personnel, absentees, movements within plant, restricted areas, smoking, auto parking, instruction in event fire or other emergency, etc. The Federal Espionage and Sabotage Statutes with provisions for a receipt of having read them as recommended above can be easily incorporated. Furthermore, it would be desirable to point out in the booklet the importance of the employees' work in the War Effort and instill them with the idea that it is their obligation to assist in safeguarding the plant by being constantly alert to the possibility of espionage and sabotage activities and to promptly report any suspicious incidents.

In this way the employees can be prevailed upon to cooperate in security measures undertaken to protect the plant and work in progress for the Navy.

6. Plant areas most vital from an espionage and sabotage standpoint should be designated and posted as a "Restricted Area" and separated insofar as practical from other sections of the plant, or areas of building within which they are located, by fencing, screening or partitions. Particular emphasis should be placed upon the protection of these vital sections. They should be lighted throughout the hours of darkness and frequently inspected at irregular intervals by members of the guard force. Only authorized persons should be allowed to enter the areas and entrances when unattended kept locked, a careful account of key distribution being maintained.

Examples of some sections of the plant which should be classed as "Restricted Areas" to receive special attention afore-mentioned are as follows: the electric substations; outdoor and indoor transformer installations, including all important switchboards; compressor houses, including compressors within shops; acetylene generator and oxygen manifold houses; boiler houses and oil pumping equipment; petroleum gas storage tanks; all flammable liquids storage facilities, including the gasoline and kerosene pumps; oil storage areas, including day stations; all tool rooms; thermit storage house; official mail room and engineering departments in office buildings; plan vaults and offices where working plans are kept, and hulls afloat undergoing outfitting.

During inspection it was observed that the majority of installations outlined above have not been protected in a suitable manner, nor are the entrances thereto kept locked. Several outdoor transformer installations are not fenced; fence at transformers adjoining substation No. 1 is not of sufficient height to protect the bus-bars.

Generally speaking, fencing should be at least of nine-feet effective height, including a topping of several strands of barbed wire. "Light Field Type" fencing material, which has been used to screen several of the secondary transformer and compressor house areas, should be replaced with galvanized wire cloth, such as one mesh 10 guage, or substantial slatted wooden protection. Similar heavy metal screening set in metal frames is recommended for installation on windows of "Restricted Areas" and on windows of buildings which form a part of the boundary lines. Present light wire screen installations held in place by wooden nailing strips is considered unsatisfactory.

* 9. Persons handling mail are considered confidential employees requiring investigation accordingly as previously mentioned. The present practice of handling mail at various locations in the office, including the telephone exchange and stock rooms, is not satisfactory and a separate official mail room designated as a "Restricted Area" should be established; kept locked when unattended, and only authorized persons granted admittance. Mail in transit by messenger between the plant and post office and Puget Sound Navy Yard should be carried in locked pouches. Incoming mail should go direct to the official mail room and be carefully examined with particular attention paid to packages. All Navy, Maritime Commission, and "Classified" mail should not be opened but delivered personnally by the mail clerk to the addressee, preferably using a locked pouch also within the plant.

Incoming mail should be logged; in the case of "Classified" mail delivered direct to the addressee it will necessarily have to be logged and the classification noted thereon at the department to which it is delivered. Outgoing mail, with the exception of that emanating from Navy, Maritime Commission, or "Classified" mail, should generally be delivered unsealed to the mail clerk for inspection, sealing, and stamping; Navy, Maritime Commission, and classified mail being sealed by the originator. The practice of delivering outgoing mail to a small open box at the stock room or to the telephone exchange room, and the acknowledgement of incoming registered mail by the telephone operator when delivered by mail man, will be eliminated by designation of an orricial mail clerk solely responsible for the handling of mail.

* 10.No definite comprehensive system seems to be in effect in connection with the handling, recording and distribution of either "Unclassified or "Classified" (secret, confidential, restricted) material such as plans, blue prints, specifications, letters, etc. It appears in a general way to be handled in a rather haphazard manner with each department more or less having a system of its own, which in practically all cases is ineffective and not in accordance with Navy security regulations.

Classified material should be kept in fire and burglar resistive vaults or safes with a trusted employee in charge, who is furnished with a list of names and signatures authorized to withdraw such material. Permanent records are required of each item issued showing the date and time of issue, signature of receiver, and time of return. The record should show the classification of material involved and each item must be returned as soon as it has served its purpose, and in no event allowed to remain out past the shift in which it was issued. Some of the more apparent defects observed during inspection are listed following, but

these are not all-inclusive and are considered only as sufficient evidence that the entire situation should be carefully reviewed with adequate precautions and restrictions put into effect to assure a high degree of security against espionage.

(a) The personnel department does not have a safe or vault to retain the confidentiality of personal data in their hands. In connection with information furnished by the Commandant via Supervisor of Shipbuilding on "undesirable persons", it was observed the index file in the personnel office contains a number of "Record Cards", classified "Confidential", showing records of individuals. These should be turned over to the Naval Inspector to destroy and the index file reflect only names. It is understood a file of letters from the Commandant also showing records of individuals is in the office vault and these should likewise be destroyed, since under the system of handling undesirables now in effect it is not necessary for the company to have a persons record, but merely his name.

(b) Classified and unclassified correspondence are intermingled in the engineering department, and probably elsewhere. Correspondence files are in storage in unlocked cabinets. Although a card with the borrowers name is used to replace a correspondence file when it is removed from the files, this does not constitute a permanent record because the cards are destroyed when the file is returned. Classified letters should be segregated from unclassified and handled and stored in manner outlined.

(c) Intermingled classified and unclassified plans and correspondence are kept in locked and unlocked metal cabinets throughout working areas in the engineering department. No apparent attempt is made to keep track of distribution from these working files. Classified material should be segregated and strict accounting kept thereof. It would be desirable to equip the cabinets, which should be of locked type, with trucks or casters so all classified materials can be stored in the vault when not needed in the working areas; the same applies to classified correspondence files. From a security standpoint it would be better to keep such files in the vault at all times, with a rigid charge-out system in effect for material actually needed during each shift, if this method can be devised consistent with efficient operation.

(d) Classified and unclassified tracings and blueprints are also intermingled in the engineering department plant vault; these should also be segregated and a rigid charge-out system instituted since the present recording system, consisting of small cards indicating name of borrower of plan, is not satisfactory as handled, because the card is returned and does not constitute a permanent record. The engineering department vault is filled to a point where it is necessary to store a large number of plans outside of the vault, indicating additional storage facilities are needed.

(e) Inquiry brought forth that no systematic record is kept of plans or specifications issued to vendors and subcontractors and that no systematic attempt is made to obtain the material from them when material issued has served its purpose. Such information should be issued on a receipt basis and promptly returned. Outside distribution must be constantly checked and kept at a minimum. It is suggested that a standardized system of receipts and form letters be adopted to circularize outside concerns and records maintained to indicate the status of data in the hands of vendors.

(f) No precise record of the number of blueprints produced or the distribution thereof is available for each individual plan. Although it might be possible to determine this by a close check between the "Drawing Office Order" slips and the "Prints Issued" table stamped on the tracing, it would be a tedious task and from the records it is doubtful whether the information could be positively determined even then. The "Drawing Office Order" and "Prints Issued" denotes distribution to various plant departments, but investigation of methods used in each department revealed that usually satisfactory records are not available of further distribution. Where the departments do have a charge-out system there is no uniformity and in most cases the system in use is wholly ineffective. In some departments a worker desiring a plan merely takes it from the files as needed without any type of charge-out system being used. Where classified plans are in use, no special precautions or records are employed, and they are generally intermingled with other plans. For instance, at the electric shop it was stated that all classified plans were kept in a certain locked wooden cabinet, but after opening several cabinets where they were supposed to be the plans could not be found. Upon further inquiry, plans marked

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both "restricted" and "confidential" started showing up from employees lockers, work benches, etc. about the shop. No record of the number issued to the department or the distribution was available.

In addition, no exact record of the disposition of blueprints by revised drawings is maintained. Large stacks of plans in various shop departments were said to be of this nature and destined for destruction by burning, but without recording. It is obvious a uniform system providing a permanent record and positive control of plans should also be adopted to apply to each shop department.

* 11. During the first three months of this year it is understood the Graham Blueprint Company produced approximately 35,000 prints for the company. From an internal security standpoint it is difficult to establish precautionary measures comparable to those recommended within the plant with the reproduction work being done by this outside concern. To do so, would require similar investigation and identification of employees, armed guard service, proper screening of windows, standard storage facilities, etc., which it is doubtful would be practical to attempt.

In view of the fact that about 80 percent of the Graham Blueprint Company business is reported to be with the company, it would seem desirable if suitable quarters within the plantsite could be allocated for Mr. Graham to set up a blueprint shop for the purpose of handling company reproduction work. So long as the work is conducted on the premises security measures would be under positive control and the exact financial arrangements to accomplish this are immaterial.

* 12. During inspection mimeographed sheets entitled "Building Schedule" were observed which set forth hull numbers and keel laying, launching and delivery dates for each vessel contracted for by the Navy. This schedule has quite wide distribution and was noticed posted at several locations about the plantsite. It contains information which it is believed would be of definite value to our enemies. The information should therefore be treated "confidential" with the distribution being limited to specific officials and safeguarded accordingly. The practice of posting launching and delivery dates on large signs at each hull is also undesirable.

* 13. The "Weekly Progress Report" Forms M-91, M-100 and M-109 listing all prime vendors, the item they are supplying, what it is used for and the status of delivery with regard to each hull are also believed in the category of "confidential" data of value to our enemies which should be handled accordingly in a way to safeguard the information. This report at present comprises some 60 pages printed matter and it is understood 62 copies of the complete report are run weekly. The report apparently has quite wide distribution to various plant departments and outside concerns. Definite safeguarding of this information is believed essential.

Employees of the Metropolitan Printing Company which prints these reports should be investigated similar to those plant employees in responsible positions, and proper security measures put into effect at the shop. Since the shop is located in an up-town basement area, it would be quite easy to install substantial doors on the stairway and freight and passenger elevator openings thereto and require the entrances to be kept securely locked at all times when the shop is unattended. Installation of American District Telegraph Company automatic burglar alarm protection would also be desirable. Suitable locked cabinets should be provided to store the galleys and all proofs and prints after having served their purpose destroyed.

14. When the Peterman Manufacturing Company and Yard storage area on the south to E. 11th Street are incorporated within the plantsite, it is assumed the extended boundary lines will be adequately fenced. The new fencing should be of at least nine feet effective height including barbed wire strands on top on outward angle arms. A fence of nine gauge galvanized chain-link type, or heavy wooden slatting, is believed preferable to the solid board fence now employed, since it is possible for guards on patrol within the enclosure to see outside.

The eighteen acre storage yard south of the Peterman plant should be fenced along Alexander Avenue and East 11th Street. It would also be desirable to install a fence along the Wapato Waterway unless future plans call for extension for the new outfitting wharf to this area. In order to place the east building wall of the "Peterman Warehouse" as far as possible from the boundary, it is suggested a fence be erected between the railroad tracks and paved road on Alexander Avenue from the south building line of the warehouse as far north as conditions will permit. In addition to improving the security of the warehouse such an enclosure would provide a fenced railroad siding for cars containing material destined for the plant at a convenient place where the cars could be searched by the guard force before they enter the more vital parts of the plantsite.

In order to eliminate the necessity for protecting window areas along the south wall of the main office and north walls of the new office annexes by strong wire screen, since these buildings are now on the boundaries, it is recommended that the main gates to the plantsite be relocated in such a way that the roadway between the office buildings will be actually within the fence enclosure. Any rearrangement of the gate house and truck gate should include a single file pedestrian gate thereat as present pedestrian use of the truck gate is a difficult situation to control during peak traffic hours.

To provide unobstructed vision for guards, automobile parking and miscellaneous storage along the fence extending east from the restaurant should be removed for a distance of at least one car length, and preferably more, from the outside of the fence line. Some sections of barbed wire on top of this fence are in disrepair and it is recommended they be replaced with three barbed wire strands on outward angle arms. The barricade at the east end underneath the north end of the outfitting wharf should be extended into the water a distance sufficient to make the underwharf area inaccessible at extreme low tide.

15. Increase boundary illumination at south end of outfitting wharf 3 at barricade mentioned above. Additional yard illumination is needed along the Wapato Waterway where the new outfitting wharf is being constructed. Install sufficient yard illumination, including the new boundary lines, when the Peterman plant and storage yard areas to the south are incorporated within the plantsite.

Illuminate all areas underneath outfitting wharves, including new outfitting wharf now in course of construction. For this, installation of General Electric 150 watt PAR-38, or equivalent, projector type flood lamps having reflectors integral with the globe are recommended. Where the wharves parallel the shore line, tests have proven that lights of this type installed one to each bay underneath the bull-rail about three-feet below deck and four-feet in from the face, and directed downward about fifteen degrees from the horizontal, will provide good illumination throughout areas up to 100 feet or more in width. Underneath piers projecting into the water at right angles to the shore line, as outfitting docks 1, 2 and the north end of 3, one light to each bay directed vertically downward and installed on the pier center line should produce good illumination. From most standpoints it is believed substantial open-wiring installations for these lights will be satisfactory. Besides conserving critical material like galvanized conduit, open-wiring will be considerably cheaper to install.

16. The present guard force appears generally well organized and reasonably effective in the conduct of their duties. However, several essential functions are not being carried out and the force should be expanded accordingly to accomplish the following:

* (a) Escort all visitors and trucks while on the premises. If desired, responsible employees can be used for this purpose, but the escorting should be the responsibility and under direction of the guard force.

* (b) Make frequent but irregular observation of janitors operating in unattended areas and supervise the destruction of waste paper, plans, etc. by burning.

(c) Frequently supervise and inspect the security of all "restricted areas", suggested under Item 8, Page 4.

* (d) Search all lunch boxes, packages, trucks, and railway cars entering and leaving the yard.

* (e) Occasionally inspect and search employees lockers for hazardous and prohibited articles and to remove unnecessary accumulations.

* (f) Extra guards are needed on the premises to act as reserves in emergency and proper supervision of entrances when working shifts change requires a large number of extra guards to be on duty. This can be accomplished by overlapping the guard shifts at times when regular employees are changing shifts. The present practice of removing guards from established posts during these times is unsatisfactory as each post should be manned at all times.

(g) It is further recommended that as soon as possible the guard force be expanded to a number sufficient to that required for protection of the Peterman plant, so the men can be indoctrinated and be available as an efficient operating organization when it and the storage yard up to East 11th Street are actually incorporated in the plantsite.

* The personnel of the guard and fireman force should be selected with extreme care and new members thoroughly investigated before they are hired. The members should be required to pass a reasonable physical examination commensurate with their duties. At the earliest opportunity

all guards should be provided with complete uniforms, and after proper instruction, registered as Special Police with the City of Tacoma, and armed. Require all to continue attending regular target practice sessions.

In order to develop the morale and efficiency of the guard and fireman forces to a high degree, a suitable central headquarters near the main gate is recommended for their use. This headquarters should contain adequate communication facilities, including annunciator devices connected to the American District Telegraph services to positively denote the location of all fire alarms originating on the plantsite, together with facilities for sounding the local alarm. It would be desirable to have the central communication facilities developed in conjunction with the coordinator headquarters for air raid protection. Such a feature is outlined in the Passive Defense Section of this report.

It is believed the over-all efficiency of the guard force can be materially improved by erecting small watch towers along the boundaries, which would provide better vision for protection against trespass thereby augmenting the foot patrols, and can be so arranged that additional guards would not be needed to put the system into effect. Each tower should be equipped with a small heated house, a search light and means of communication with central guard headquarters. The following is a suggested minimum layout of guard towers:

1. At north end of Alexander Avenue in vicinity of main gate.
2. At south end of outfitting wharf No. 3.
3. At north end of outfitting wharf No. 3.
4. At north end of outfitting wharf No. 1
5. At north end of new outfitting wharf.
6. At south end of new outfitting wharf.
7. At intersection of Wapato waterway and East 11th Street.
8. At intersection of East 11th Street and Alexander Avenue.
9. Near southeast corner of new "Peterman Warehouse."

Since the hulls sometimes extend past the ends of the outfitting wharves and will therefore interfere with vision from watch towers set permanently upon the wharves, it is suggested that the towers at these locations be of portable type which can be readily hoisted upon the decks of hulls so situated and secured either on hulls or wharf ends as conditions warrant.

(d) All badges of workers who have terminated employment, in fact all unissued badge material whether assembled or not, should be stored in a secure location under lock.

* (e) The present badges contain a combination letter and number designation which indicates the status of the wearer to a limited extent, and the craft of the worker, but it does not include any marking sufficient to limit the movement of employees within the plantsite. Therefore, it is recommended that the badges be redesigned to include a more distinctive marking, such as a colored background, in accordance with a system to differentiate between employees on various shifts, and insofar as practical restrict their movement within the premises to the department where their services are actually required. The system should also embrace a distinctive marking or special badge definitely showing those employees authorized to work on the vessels being outfitted. It would also be desirable to have the picture taken against a height-chart background showing height on photograph.

(f) Any badge system is inherently weak from a security standpoint in a large plant, since it is extremely difficult to adequately check each employee on entrance. In order to have an ultimate in identification security it is believed that the badges should be supplemented by individual identification cards issued to each employee. These identification cards should be of tamperproof type containing the employees name, address, signature, photograph, finger prints, and a brief physical description, similar to the card passes now issued regular visitors. Similarly, an accurate control register of cards issued reflecting pertinent information should be maintained.

In the operation of a dual identification system each employee will be required to hand over the identification card when he enters the gate, and after comparison of the photograph on the card with the individual and with that on the badge, the guard will retain the card and hand the employee his badge. The badge would be called for by the number now allocated to each employee, which is his badge, timekeeping and brass number, and no evidence of any kind of this number should appear on the card. On leaving the plant the badge after similar comparison will be retained by the guard and the card returned

to the employee. Thus the badges are never removed from the premises, nor are the cards carried by the employees while working, and neither is of value without the other for entrance and departure at the gate.

The dual system briefly outlined above is obviously very effective and is now coming into use at other important military procurement plants where utmost in security is required. It is understood steps are now afoot to provide all waterfront workers in Tacoma with Coast Guard Identification Cards issued by the Captain of the Port, and if desired it might be possible and advantageous to work out a dual system using these cards and the present badges, with certain modifications.

* 18. As previously mentioned, all visitors in addition to being registered and evidencing identification on their outer clothing should be escorted by a guard or trusted employee at all times while on the premises. Persons who frequently visit the plant such as vendors, union business agents, utility repairmen, etc. who are now issued red or blue passes, but are still treated as visitors, and restaurant workers, employees of sub-contractors like V. S. Jenkins Company, General Construction Company, etc. who have been issued amber isinglass faced badges and to whom it is wished to afford special privileges, that is, to not be escorted, should be required to submit complete personal history information and undergo investigation at least as thorough as given regular plant employees. Badges issued to these "special visitors" should be different in design from those furnished regular employees and regularly escorted visitors. The present practice of issuing red and blue passes and sub-contractor badges on a basis of fingerprinting only, without proof of citizenship, personal history information or investigation of the individual is obviously weak from a security standpoint because they have as much or even more freedom than regular employees. Along the same lines as the recommended dual identification system, persons in the category of "special visitors" should have both an identification card and a "special visitor" badge. The badge to be kept at the gate and issued under guard supervision when they enter and picked up when they leave the plant. In the case of a sub-contractor like the General Construction Company having a large number of employees on the premises, it would be desirable they be required to furnish an employee at the gate during shift changes to assist the guards in identifying their employees.

* 19. Unless truck drivers and helpers have been qualified as "special visitors" under the method established above and evidence this status they should be escorted while on the premises the same as any other visitor.

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* 20. All trucks and railway cars should be carefully examined before being allowed to enter or leave the plant. In the case of railway cars, inspections should determine the seals are intact, have not been tampered with and the numbers preferably checked against the way-bills. If it is necessary for train crews to enter the plant-site they should be under surveillance of a guard or responsible employee at all times.

At present contents of employees' lunch boxes and packages are searched upon entering gate only, it is recommended that they be similarly searched on leaving. Outgoing package regulation is weak inasmuch as it is possible to substitute contents after the pass-out check has been received, between the working departments and the time of leaving the gate. When the pass is issued the employees' foreman should retain the package and send it by messenger to the gate where it would be released to the employee upon surrender of the pass at the time he actually leaves the premises.

* 21. Distribution of keys for building and plant entrances, restricted areas, file cabinets, and the like should be under supervision of a responsible employee and carefully recorded. Limit distribution to individuals whose duties require possession of keys. Insofar as practicable keys should be turned in to a central key locker, preferably under supervision of a guard, at the termination of each shift and not carried away from the premises. It is understood that a master system of locks and keys is now on order covering both plantsite buildings and outside warehouses. Such a system could be laid out on a sectional basis with access to each unit localized and the multiplicity of situations properly segregated to provide the best possible security.

It is desirable that combinations to vaults and safes be changed periodically; change being made by employee using the vault, thereby limiting knowledge of the combination to only persons authorized to use it.

22. Switch controls in small fenced area east of the temporary General Construction Company office should preferably be within the plant enclosure. In any event the line-disconnects having an extension handle to ground level now held in place by a wire, with the handle capable of being reached from outside the fence, should be securely locked. The switches at this location are on the single set of aerial transmission lines supplying the plant and opening them would disrupt the entire electric supply with possibility of damage to equipment and personal injury.

23. It is undesirable for an operation of this size to be solely dependent on a single set of aerial transmission lines. Consideration should be given to the installation of additional transmission lines on a different route so the plant will be supplied by gridironed circuits. The possibility of exchanging transformers between various sections of the plant and obtaining spare transformers from an outside source should also be investigated and provided for so important units can be kept in operation in emergency.

The Peterman Manufacturing Company has electric generating equipment in a capacity of 1800 KW; while this is insufficient to anywhere near carry full power load demands it is believed the equipment should be retained as an auxiliary reserve source for supplying vital plant needs in emergency, such as protective lighting. The Peterman boilers are now fed by wooden refuse obtained from their woodworking production, but the boilers can be equipped with oil burning equipment quite easily to provide steam in emergency for the turbine driven electric generators.

24. The transformers are of oil-filled type and installations are not in accordance with provisions of the National Electric Code. This is particularly true of the secondary substation units located on outfitting wharves, under head end of shipways, and others adjoining structures of wooden construction. Transformers immersed in a liquid that will burn and located on or immediately adjoining combustible structures should generally be installed in a masonry vault having protected openings and door sill of a height to confine within the vault the oil from the largest capacity transformer. Accordingly, consideration should be given to providing proper vaults for transformers at unsafe locations, like at wharves and shipways where they constitute an exposure to vital structures, or to replacing them with ones having non-combustible dielectrics. New outfitting wharf stations should be similarly treated if on the structure, or installed outdoor on solid ground at safe location and diked.

25. The number and organization of the paid firemen now in employ appears adequate, assuming additional men will be added as the number of hulls being outfitted increases and when the Peterman Manufacturing Company plant is taken over. It is recommended that at least one fireman, preferably an Assistant Chief, or a Captain, be assigned the responsibility of fire protection maintainance at the warehouses in other parts of town. These should be visited and checked over by a fireman at least daily. The efficiency of the department can be materially increased by augmenting their number with squads of regular

workmen from all departments and shifts organized and trained to serve on a volunteer basis. Under the Passive Defense organization auxiliary squads of this type have been designated and trained on the night shifts, but have not been as yet on the day shift. All volunteers should be properly trained and regularly drilled and the organization should include specialists who are thoroughly familiar with the water, electric, acetylene, etc. services.

26. A serious weakness in the present fire protection facilities is the fact that the plant firemen have no means of being called or of knowing when or from where a fire alarm emanates. It is recommended that the American District Telegraph Company fire alarm signals (sprinkler water flow, manual fire alarm box and Aero automatic fire alarm equipment) be intercepted and registered on a annunciator set installed in the guard and fireman headquarters. The best way would be to provide a regulation punch register which would precisely indicate the location of the fire alarm. This should be supplemented by one or more power whistles or sirens audible throughout the entire plantsite, actuated manually by character wheels at headquarters so coded alarms can be sounded in accordance with the fire zones into which the plant will be presumably divided. This system can also be easily arranged to actuate similar coded signals on single-stroke gongs at the electric substations, superintendents office, and other locations which should be immediately notified in case of an alarm. The same system can be used for air raid alarms by merely having a proper character wheel for the predetermined signal.

The American District Telegraph Company's Aero and sprinkler water flow circuits are said to be energized by batteries of 48 hour carrying capacity on the plantsite. It is recommended that their fire alarm box service circuits be provided with storage batteries also, so that all the fire alarm services are locally energized and the circuits self-contained within the plant without dependence upon their central station. It is not believed necessary to so provide the watchman reporting and valve tampering supervisory circuits, because in emergency these services could be dispensed with for a short time without seriously effecting the protection of the property.

27. All control valves on the fire protection and domestic water services should be locked in open positions, especially those on domestic services supplying inside hose equipment and standpipes, including those at the shipways, which are not supervised by the American District Telegraph Company. The valves of key type in pipe

pits at the city water connections and on city mains in the vicinity can be quite easily tampered with and should receive special consideration. If satisfactory arrangements cannot be made with the city water department to fasten or suitably lock the pit covers at these valves, the guards at nearby posts should be advised of the situation so the valve pits will be under observation.

28. Install a 10-inch main paralleling Alexander Avenue and approximately 600 feet in length between the northeast corner of the Peterman loop and the present plant loop near city connection west of restaurant. Also install an 8-inch main approximately 350 feet in length from the northwest corner of the Peterman loop to make connection with present plant loop at a location at southwest corner of warehouse No. 1. These two connections will make the Peterman water system an integral part of the plant system; it is assumed an adequate number of valves will be installed in the connections so sections can be isolated. While it appears satisfactory to abandon the present city connection at the General Construction Company office, it would be desirable to at least retain the outlet at the north Peterman city connection for use as stated in the following recommendation.

29. This is a matter which will necessarily have to be taken up with city authorities to obtain desired improvements. The city water supply at the plant is derived from a 12-inch deadend main about 1/2 mile in length on Alexander Avenue, which is in turn connected to a deadend 32-inch main on East 11th Street also deadended for a long distance and supplying water for the entire tide flats district east of the Sitcum Waterway. Besides being a deadend system with inherent unreliability and easier to completely cripple by sabotage, one section of the 32-inch main is exposed where it is supported by a wooden trestle on East 11th Street crossing the Wapato Waterway.

A flow test on May 4, 1942 at 4:30 P.M. at a time of normal water consumption, indicated a static pressure of 96 pounds on the system with approximately 2400 G.P.M. available on the plantsite at 60 pounds residual pressure, or approximately 3000 G.P.M. at 40 pounds, which is the minimum pressure sprinkler heads in the highest building will operate efficiently. Since the plant will have a secondary source of water supply consisting of two elevated gravity tanks of 100,000 and 150,000 gallon capacity, the lack of reliability of the city water supply on account of being a deadend system becomes more important than its deficiency in capacity. Accordingly, the following recommendations are made to correct the lack of reliability and increase the capacity of

the city water system in this district:

(a) Install an additional main at least 12-inches in size along the east side of Alexander Avenue and connected to the existing 12-inch main at the north end of the street in the vicinity of the main entrance to the plant. This will provide a 12-inch city loop on Alexander Avenue.

(b) Install a city water connection between the northeast corner of the Peterman loop and the new 12-inch main recommended above; an outlet for this connection was recommended in Item 28. This will provide a total of 3 city water connections to the plant system.

(c) Install a new large-sized city main approximately two miles in length on Lincoln Avenue as recommended by the National Board of Fire Underwriters to strengthen the entire city water system in the tide flats district.

(d) Suitable sectional control valves are required on the extensions to insure an uninterrupted supply inevent of a break anywhere in the systems.

30. Although substantial outside ladders for access to roofs are available at most buildings, additional ladders of this type are needed on the larger buildings, spaced in a general way approximately 150 feet apart around the perimeters. This applies principally to the shops building, warehouse No. 2, mold loft, steel shops "A" and "B", main office, warehouse No. 1, and the new Peterman warehouse.

31. Install a sufficient number of standpipe outlets on the roofs of all principal buildings, so located that with not over 100 foot lengths of 1 1/2-inch hose and nozzle attached all parts of the roofs can be reached. It is desirable to have hose equipment readily available on the roofs in event of a fire, especially so in case of incendiary bomb attack.

The 1 1/2-inch hose installations now have different types of threads on the couplings; for the sake of uniformity the type used by the Tacoma Fire Department, which is believed to be "National Standard", should be adhered to on both 1 1/2 and 2 1/2-inch hose couplings and fittings.

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To prevent deterioration of hose attached to standpipes it is a good idea to set the hose valve outlets in a horizontal or upward position and install a small petcock to drain off any leakage past the valve seat, thereby keeping moisture out of the hose and extending its life.

* 32. Portable hand first aid fire protection appliances appear adequate as a whole and generally in accordance with recognized standards, with the exception that additional extinguishers of special suitable type are needed where electrical equipment is located.

33. The present hose cart installations are considered sufficient only as a reserve supply of hose. It is recommended that each yard hydrant be provided with a house and at least 150 feet of 2½-inch hose and nozzle, kept attached to hydrant ready for instant use. Also provide a sufficient supply of miscellaneous appurtenances in each house such as nozzles, spanners, gaskets, axes, flashlights or lanterns etc. The need for hose at individual hydrants is desirable anyway, but is particularly emphasized at the plant by the fact the hydrants in most cases adjoin and are severely exposed by buildings, which situation requires especially prompt action at hydrants.

34. In order that hulls on shipways will have adequate protection it is recommended pipe risers at least 2-inches in size, installed at the approximate location of each present outlet alongside the cranesways, be provided on the scaffolding with hose connections available at various elevations. Adequate lengths of hose and nozzles, kept attached and coiled in a suitable closet, should be provided for each riser, and moved up to be at the approximate top deck level of each hull as construction progresses.

35. Hydrants on the shipways are now supplied by deadend small sized piping systems of inherent unreliability and inadequate capacity for the purpose. These consist essentially of 2½ and 3-inch pipes along each side of each craneway; cranesways 1 to 3 being connected to 4-inch deadend pipe and cranesways 4 to 9 inclusive being supplied by a 6-inch deadend pipe. Both these are connected to the domestic water supply which is a 4 and 6-inch looped installation.

In order to strengthen the layout, the 2½-inch pipes on both sides of each craneway should be connected together at their north end by a 2½-inch pipe approximately 25 feet in length. A valve is needed in the cross-connection so hydrants on either side can be kept in service if it is necessary to repair the other side. The systems for cranesways 1 to 3 and 4 to 9 should also be connected together at the south end of shipway 3, and 4 and 6-inch supply main extending east

and west across the south end of the shipways connected to mains at the extreme east and west ends so as to make a looped system. The connection at the west end would be made to a new water main which will presumably be installed along the new outfitting wharf on the Wapato Waterway. This connection would also serve to strengthen the new main on the new outfitting wharf, which should similarly be part of an adequate sized looped system. Valves should be installed at suitable locations on the system so as to limit the number of hydrants out of service to a minimum when it is necessary to shut off some sections for repairs.

36. Install draft curtains spaced approximately 100 feet apart in the roofs of the mold loft and steel shops "A" and "B". The curtains can be as light as double one-inch matched lumber, of tight construction with all pipe and other holes tightly closed, and extending down to the bottoms of the roof trusses. These curtains are desirable in large area buildings having high ceilings in order to improve the operating efficiency of the sprinkler system. They would be of particular value in the mold loft where unnecessary operation of a large number of sprinklers in event of a small fire would seriously damage the layout floor. Their value at the steel shops would also be considerable.

37. Install a standard masonry fire wall at the west end of the main office to separate this building from warehouse No. 1. The fire wall should be preferably without openings, but if openings are needed they should be kept to a minimum and each provided with standard Class A fire doors on each side of the wall.

The main section of the Peterman factory building which is to be used as a warehouse is approximately 250 x 750 feet in size and it is understood several million dollars worth of materials will be stored in this warehouse when it is in full use as a unit of the plant. Although this building has a concrete floor on ground and is equipped with good automatic sprinkler protection, the fact should not be overlooked that the building is of wooden construction and under adverse conditions is subject to complete destruction by fire with the possibility of serious interruption in the war shipbuilding program. It is accordingly recommended that two standard fire walls with openings therein kept to a minimum, and properly protected, be erected extending east and west through the building, thus sub-dividing it physically into three approximately equal area fire divisions. Such fire walls should naturally extend through the wooden walls and roofs.

The problem of storing large quantities of oakum which was causing considerable concern at the time of inspection can be quite easily solved

by using either the reinforced concrete fire resistive steam vats or lumber dry kiln units at the Peterman plant for this purpose. If the lumber dry kilns are used, the east end of each compartment should be provided with standard fire doors or closed up solid with masonry to separate the compartments from the adjoining important warehouse unit.

38. Correct or extend sprinkler protection at the following locations, largely occasioned by recent construction changes.

(a) Sprinkler new office annex and General Construction Company (new personnel) building.

(b) Remove top or sprinkler template checker office warehouse No. 2.

(c) Sprinkler loading platform south end of warehouse No. 2 and remove canvas awning over same. If a roof is needed over the loading platform it should be of substantial construction and sprinklered.

(d) Additional sprinkler heads are needed at new partition at south side of lecture room on second floor of the shops building, and the new addition to the machine shop office should be sprinklered.

(e) Install one sprinkler under east end of tool room awning at north end of the mold loft building, and sprinkler small deck at southeast corner of the tool room.

(f) Sprinkler new tool room 40 x 80 feet in size now under construction north of the present tool room. Sprinkler underneath deck at south end of joiner shop.

(g) Install complete sprinkler protection underneath large slatted decks recently erected above vertical template storage racks in the template storage room under mold loft. Older similar decks in this room are already sprinklered.

(h) Sprinkler maintenance shop building located 30 feet east of the mold loft. It would be desirable to replace the present oil soaked wooden floor in this building with an incombustible floor.

(i) Remove canvas shelter at southeast corner of the sheet metal shop over Little Slab 9, or if a permanent structure is needed here sprinkler same.

(j) Sprinkler material office northwest corner of steel shop "A" and welding school testing room near southeast corner of building.

(k) Sprinkler addition at west end of steel yard office.

(l) Sprinkler small tool room near southeast corner of steel shop "B".

(m) Sprinkler sheet metal shop drafting room under construction at southwest corner of warehouse No. 1.

(n) Sprinkler substation No. 2 adjoining east end of steel shop "B" and install canopies or shelters to protect the switchboards and generators therein from water. It is a delusion to omit sprinkler protection in combustible buildings because they contain electric equipment; should a fire involve the structure, hose streams are inevitably employed and these throw more water less efficiently than automatic sprinklers. If the substations are of incombustible construction like substation No. 1, or if ones of combustible construction like substation No. 2 and other secondary substations about the plant can be satisfactorily surfaced inside with an incombustible wall board, sprinkler protection would not be needed.

39. Install automatic sprinkler protection throughout the areas underneath outfitting wharves 1, 2, and 3 and new outfitting wharf now under construction along the Wapato Waterway. Also sprinkler elevated sections of craneways 1 to 9 inclusive, elevated sections at head end of shipways, and the tunnel extending under the extreme head end between No. 2 and 9 craneways. Piping and heads beneath sections elevated over tide water should be of corrosive resistive specification. At the same time the wharves and elevated platforms are sprinklered, the compressor, transformer (see Item 38 (n) for comment), tool house, saw sheds, etc., including all permanent buildings on or adjoining the structures, should be sprinklered.

Even though the major part of the areas referred to above are now equipped with A.D.T. Aero fire alarm service, the fact that this is merely an alarm service which was perhaps commendable as a peace time measure, but will not control nor extinguish fires, should not be overlooked. Nationally recognized fire protection standards call for sprinklers under such wharves and platforms, and it is therefore so recommended. Attention is invited to the fact that serious consequences could in all probability result from a fire originating in these areas

and spreading out of control, unless they are properly protected against this contingency. Furthermore, sprinkler protection under the cranesways, the head end of shipways and in the tunnel extending across the head end would serve to prevent the communication of fire from one shipway to another.

40. Discontinue use of flammable tarpaulins other than for covering non-damageable materials stored in the open yard, not on wharves or near buildings. All other tarpaulins and curtains should be of flame-proof type. At the time of inspection it was observed tarpaulins were being treated with a "Hooperwood Fire Chief" patented compound; a test of a sample so treated indicated this compound does not satisfactorily fireproof the fabric. So far as known no satisfactory method has been developed to suitably treat fabrics in the field for stable fire-resistance. It is therefore recommended that fabrics treated by a manufacturer under Federal Specification CCC-D-746, dated February 17, 1939, (Fire, water, and weather resistant cotton duck fabric treatment) be used. Fabrics manufactured under this specification are suitable for use in this locality where ordinary water soluble salt treatment is unstable and attempts to treat tarpaulins in the field have not so far produced desirable results.

Where it is desired to erect temporary or portable shelters, such as to cover hatches on vessels or to cover damageable material in storage in the yard, it is recommended that either tarpaulins flame-proofed as recommended above, or a shelter of more fire-resistant construction like corrugated iron on a minimum of skeleton wooden framework be used.

41. At present lime residue from acetylene generators is being satisfactorily disposed of at shore line along the west side of the plant, but when the new outfitting wharf is completed along the Wapato Waterway this location will not be conveniently available. The operator should be instructed to seek another safe location detached as far as possible from the wharves, and continue to use care in disposition. If lime residue is not spent, gas may be given off or heat generated on further slaking and under no circumstances should the residue be dumped into the underwharf areas.

42. All above-ground sections of acetylene, oxygen, petroleum gas and oil piping lines should be painted a distinctive color, and color charts indicating the coloring system used prominently displayed so employees will know the contents of pipes. Where acetylene, petroleum gas and oil piping lines enter buildings, individual shut-off valves should be provided so that the service to each building or unit can be

promptly shut off in emergency. To be readily accessible without delay the valves must be located outside of building walls and conspicuously designated. Where the valves are situated just inside of walls, it is an easy matter in most cases to extend the valve stem to have auxiliary hand wheel outside.

43. The above recommendation is especially appropriate to the oil pressure system consisting of an electric driven pump in the boiler house southeast of the mold loft, which supplies oil under pressure to the bending furnaces. Owing to the confusion which inevitably occurs when a pressure system of this kind ruptures and oil fire ensues, it is important a positive means for shutting off the pressure be readily available. The bending furnaces are located at a considerable distance from the oil pump and it would be desirable to have remote control switches near the furnaces so that the entire pressure system could be promptly shut off in emergency by stopping the electric motor drive on the oil pump. At any rate, as a minimum precaution, auxiliary shut-off valves should be located on the oil piping outside the south sides of the bending furnace additions adjoining the steel shops. The supply pipes for each of the three bending furnaces are available at these locations.

The main oil pump and the individual pumps on furnaces 2 and 3 are equipped with cushion tanks having compressed air connections. Check valves are needed on these connections to prevent the possibility of oil backflow into the air system.

Lock the valves on pipe outlets outside the boiler house where diesel oil is withdrawn for the tractor and other purposes, so that only authorized persons can obtain it.

44. Petroleum gas cylinders, such as in use at the sheet metal shop for filling portable heating devices, should be stored outside of the buildings and kept in locked metal ventilated cabinets. The petroleum gas cabinets outside the two boiler houses should be similarly kept locked.

45. The petroleum gas installation at the copper shop is hazardous. At the time of inspection twenty-two large sized petroleum gas cylinders were lined up at the manifolding rack adjoining the building. Although the amount of liquid in storage naturally affects the hazard, the possibility of fire is almost directly proportional to the number of tanks since the number of reducing valves or carburetors and connections multiplies the hazard. It is recommended that this battery be replaced by one large storage tank located as far as possible, at least 50 feet, from a major building unit, and supplying the copper shop through a buried piping system. Fuel gases in a liquid state have hazards similar

to that of a flammable liquid. Whether a large storage tank requires a dike or not depends on the exact type of gas used and its respective rate of vaporization.

The system should have readily available control valves at the source and outside of the building wall. It is recommended that excess flow valves be installed at each reduction in pipe size and at each outlet on the system to prevent an unobstructed flow of combustible gas in event of breakage in the piping or connections. At the outlets, the shut-off valves should be on the supply side of the excess flow valve so the latter can be easily repaired if necessary.

46. Smoking is now prohibited at locations and occupancies generally considered necessary, including warehouses and all outfitting wharves and vessels afloat. It is understood that prohibition of smoking on the shipways, craneways and hulls under construction is under consideration and this move would be commendable as an added fire precaution. The paint shop "no smoking" rule should be enforced in the locker and lunch room section on the mezzanine floor.

47. Provide a screened stack on the wood-fired stove used for melting launching lubricants. It is recommended that the present salamanders used for heating the propeller packing compound be replaced with stoves of substantial steel construction, also equipped with screened stacks. It is believed safe to continue using the latter over sand-covered sections at the north ends of the craneways providing the stoves are on legs so air can circulate underneath and a fire guard is stationed nearby when they are in use. However, the large launching lubricant stove should be kept at its present location on solid ground south of the shipways.

48. The portable steel house used as a paint shop at the ways should either be provided with a steel floor or the house not located on plank structures as it was at the time of inspection, but kept south of the ways on solid ground. A suitable portable fire extinguisher should be provided outside and the house kept locked when unattended.

49. Extend dust collecting system to service all of the woodworking machinery in the carpenter and joiner shops. A lack of a vacuum system to service the sander in the joiner shop creates a particularly dusty condition in the vicinity of the machine.

50. Large cracks exist in the mezzanine wooden floors at the paint shop, locker rooms in shops building, second floor of warehouse No. 1 adjoining the main office, and at some other locations about the plant. Combustible materials can accumulate in these cracks and it is recommended

that such single floors be surfaced with tight matched flooring at least one-inch in thickness.

In the case of warehouse No. 1 the cracks also provide a means of communication for fire between the first and second floor levels. In addition to surfacing the second floor in this building, the stairway and elevator openings should be enclosed of construction at least equivalent to the floor and provided with automatic tin-clad fire doors.

51. A large number of wooden clothes lockers were noticed at various locations about the plantsite. These should be ventilated, the ventilation area being at least 25 percent of the floor area of the locker. If the lockers are located within sprinklered buildings, they should be of open-top construction so overhead sprinklers can distribute water within the enclosure. If desired, the tops can be of some light material like wrapping paper or cheese cloth, on ordinary chicken netting for support, to keep out dust. It is desirable to have the tops set on a slant so it is impossible to store materials on top to defeat the purpose of the open top.

52. Several oil burning stoves are installed in small offices, tool and locker rooms and at other locations such as the maintenance shop. While the stoves are all of approved type bearing the label of Underwriters Laboratories, Inc., the label of approval is for use with integral tanks which ordinarily do not exceed 10-gallons aggregate capacity. The majority are now supplemented by a 50 gallon drum nearby, supplying the burner by gravity feed. As a minimum precaution, it is recommended that the storage of oil be limited to the amount contained in the small tank attached to each stove and approved safety cans be used to transport the oil from the main storage facility. The stovepipe at the material office in the northwest corner of steel shop "A" should be changed to vent outside and not beneath a wooden timber inside of building like it is at present. One stovepipe in locker room east end steel shop "B" has unsafe clearance from woodwork. Owing to the apparently increasing number of these stoves and the inherent difficulty of controlling the fire hazard at each, including the handling of stove oil, it would be desirable if all of the oil burning stoves were removed and replaced with electric space-type heaters where heat is needed and cannot be easily supplied by a central heating system.

53. The light switch in oil house should be replaced with one of approved vapor-proof type, or moved outside. Windows on the building should be screened, the door kept locked, and it treated as a "restricted area" as previously mentioned. The gasoline and kerosene pumps should

also be kept locked at all times when unattended. Provide an approved 50-gallon gasoline buggy for use in servicing the gasoline locomotive and discontinue the present practice of hauling a barrel of gasoline on a lift-type trucktractor.

At the time of inspection several barrels of gasoline, diesel oil, machine oil, etc. were stored outside of the oil house and the large number of drums of stove oil and other flammable liquids were observed at various other locations on the plantsite. All quantity storage of flammable liquids, including lubricating oils, should be stored under lock and key in the central oil house. Approved small safety cans should be obtained and used to transport these liquids between the oil house and where used. The entire storage distribution should be carefully supervised to prevent so far as practical unauthorized persons obtaining flammable liquids on the premises, because they are of assistance in sabotage attempts by fire.

54. Storage and use of chemical concentrates such as acids used in the pipe cleaning vat adjoining southend of shops building should also be under rigid control and kept in locked closets since they can also be used in sabotage work. Several carboys of muriatic and sulphuric acid were stored in the open yard adjoining the southeast corner of the shops building at the time of inspection. Whether or not the solution in the pipe cleaning vat is of sufficient strength to be a hazard from a sabotage standpoint should be investigated. If it is of sufficient concentration the vat should be enclosed with walls and the area kept locked when unattended.

55. Housekeeping conditions beneath the assembly platforms, both at the ways and within the steel shops, and also underneath the bending slabs, were unsatisfactory at the time of inspection. Employees seemed to use these spaces to dispose of debris from their lunch boxes and other materials; the matter of keeping these areas clean including those beneath the craneways, shipways and wharves is one requiring constant vigilence and strict regulation.

56. At time of inspection approximately 7½ tons of thermit was in storage in a small wooden shed near the south end of outfitting wharf 3 at the southeast corner of the plantsite. The shed also contained a small amount of oakum and was located adjoining the fence line, introducing the possibility of sabotage by a person familiar with the situation. It is recommended that a reinforced concrete vault without window openings and steel door locked when unattended be provided solely for the storage of thermit. The vault should either be diked with sand or the floor depressed below ground level to have a pit of capacity equal to

that of the molten iron content of contemplated thermit storage to confine the molten iron and prevent damage to nearby equipment or structures if the thermit should ignite. While the vault would probably disintegrate if the large amount of thermit in storage should ignite, it is believed a heavy reinforced concrete structure would have a restraining effect on the eruption. In any event, it would not be a contributing factor to the actual ignition like the present light wooden storage shed might.

57. All known pictures and negatives of the plantsite and ships in the hands of commercial photographers or others should be obtained and stored in the plant vault, and reproduced only with official sanction. These should be obtained in a way to assure the photographer not having an opportunity to retain duplicate negatives.

Photographs, and all vital information as far as that goes, concerning New Construction (interpreted as a ship from its initial proposal until its commissioning, and including conversions) of the aircraft carriers now being built at the plant should be classified as "Confidential" and safeguarded in accordance with U. S. Navy regulations. Non-official photographs of the ships shall not be permitted except in case of a launching ceremony, when the following types of photographs may be taken after receiving permission from the District Commandant:

(a) Views of the christening ceremony.

(b) Views of the hull and of the actual launching that do not disclose confidential features of armament construction or other material.

Views of the underwater hull astern and views from overhead are not permitted unless specifically authorized by the Secretary of the Navy.

58. Through the restaurant dining facilities feeding large groups of employees they are subject to the possibility of epidemics, whether as an act of sabotage or otherwise. Frequent tests to determine the quality and possibility of contamination should be made of the food prepared and served. It is also important the restaurant workers be carefully selected the same as recommended for other employees.

59. Since the warehouses at various locations about town are leased on terms varying from a month to a year and the value and importance of materials stored therein varies, the matter of recommendations must be considered accordingly by the management, taking future status of each into consideration. For instance, at the time of inspection the

"McCormick Warehouse" contained over two million dollars worth of material, whereas the "Shaffer Terminal No. 2 Warehouse" was just being occupied, but it was understood that values at the latter location would be heavy in the near future. In addition, it is understood that in the future the "McCormick Warehouse", Warehouse 710 Commerce Street and the "Associated Wineries Warehouse" are to be used exclusively by the Maritime Commission; Navy materials being confined to the other warehouses.

From a strict security standpoint it would be desirable to limit the occupancy in each warehouse to storage of government materials only by taking over space now used by other tenants. This may or may not be possible in some cases such as the "Shaffer Terminal" where only about half of the pier is now leased with the lease on a month to month basis.

An important feature to bear in mind in the warehousing is the desirability wherever possible of storing essential materials, equipment and finished goods in such a manner that no single fire or accident can destroy all available units of any particular item, thereby resulting in a serious delay in the Shipbuilding Program. Dispersal can be accomplished by storing units of particular items at various locations remote from each other, or in separate areas in a single building cut off by standard fire walls. The latter method has been previously recommended for the new "Peterman Warehouse." As a general rule, delicate equipment like instruments easily damaged by fire or water should not be stored in fire areas where highly combustible materials, such as mattresses, or wrapped and crated furniture, are located. In arranging storage it is therefore imperative these features, as well as the type of construction and protection available, be taken into consideration.

The following specific recommendations applying to each uptown warehouse are submitted:

Warehouse, 414 Puyallup Avenue

(a) Board up or screen skylights.

(b) Install heavy metal screens over window openings on first floor facing street and second floor facing alley.

(c) One armed guard now on duty at all times is considered satisfactory.

(d) Consider installation of A.D.T. Company guard supervisory or have guard report hourly by telephone to main plant.

Warehouse, 710 Commerce Street

(a) Screen window openings on first and second floors.

(b) It is recommended that the entire building be taken over and an armed guard stationed thereat at all times if future importance warrants; values did not appear to warrant it at inspection.

Associated Wineries Warehouse

(a) Eliminate dual occupancy by taking over the entire building.

(b) Maintain three armed guards on the premises at all times, two patrolling outside and one inside. Two guards are now on duty.

(c) Consider A.D.T. Company guard supervisory or have guard report hourly by telephone to main plant.

(d) Fence boundary and illuminate yard area.

(e) Install inside standpipe and hose equipment. The building was apparently so equipped in the past and piping system is available.

Carman Manufacturing Company Warehouse

(a) Eliminate Carman Manufacturing Company office and showroom sections on first and second floors, and close up or properly protect open stairway in this section.

(b) Test fire doors on stair and elevator openings to make sure they are all in effective automatic condition.

(c) Close up solid with well bonded masonry all communication openings in east wall to adjoining frame building.

(d) Screen all windows on first floor in a secure manner.

(e) Lock open all valves controlling sprinkler system and water supplies therefor.

(f) Consider A.D.T. Company full supervisory service for sprinkler equipment, also manual fire alarm box service.

(g) Consider A.D.T. guard supervisory or have guard report hourly by telephone to main plant. Two armed guards on duty at all times is believed sufficient.

McCormick Warehouse

(a) Fence land boundary and illuminate area so enclosed.

(b) A.D.T. Co. fire alarm and guard supervisory now installed. Three armed guards on duty at all times is believed sufficient.

(c) The only way to adequately protect this warehouse from fire is to install a standard automatic sprinkler system, including protection underneath the floor and adjoining wharf areas and a water curtain against the severe exposure located 55 feet north.

Shaffer Terminal #2 Warehouse

(a) Give consideration to elimination of dual occupancy by taking over north half of warehouse now used by others.

(b) Fence land boundary and illuminate area so enclosed.

(c) Maintain three armed guards on the premises at all times, one inside and two outside. This number will necessarily have to be increased if north section of warehouse is taken over. (Only one guard on duty now).

(d) Standardize A.D.T. Co. guard supervisory and fire alarm services now installed.

(e) Lock open all control valves on the sprinkler system and consider installation of A.D.T. Co. full sprinkler supervisory service.

(f) Extend automatic sprinkler protection to underfloor and adjoining wharf areas. A fire originating or extending into these unprotected areas could result in complete destruction of the building under adverse circumstances.

60. It is recommended that the following minimum security regulations be put into full force and effect on each aircraft carrier or similar sized vessel afloat from the time it is launched until delivered (During inspection these recommendations were discussed at considerable length with the management and it is believed those preceded by a double asterisk are now being carried out or arrangements have been made to do so):

1. Maintain vessels as "Restricted Areas", permitting only persons with special identification denoting specific authorization to go aboard. Lunch boxes, packages, tool boxes, etc. should be carefully searched at the gang-plank before being allowed aboard.

   While it would seem desirable to prohibit lunch boxes aboard, it is appreciated that it might be impractical to require all employees to eat ashore. As a minimum precaution one section of the ship should be set aside as an eating area and all lunch boxes kept there when aboard.

** 2. Station an armed guard at each gang-plank at all times. These should be under direction of Chief of Guards and practice of using watchmen from labor force with Union affiliation discontinued. As ships near completion it is believed at least one additional guard should be provided to patrol at all times, paying particular attention to engine room and other vital locations.

   Drinking fountains at gang-plank are now so located that workmen have to pass the guard going and coming, which causes unnecessary confusion. Either relocate drinking fountains or guard station so this will be avoided.

** 3. Increase number of firemen on each hull from two to three man on duty at all times, including one permanent station in engine room. This number should be further increased as hulls near completion. Each should carry a suitable fire extinguisher ready for instant use.

4. Keep combustible stagings and materials aboard at a minimum. Under no condition should other than fire-resistant tarpaulins be used. The ventilation system fabric blower ducts should be replaced with ones of fire-resistant type fabric.

Where shelters are needed to cover hatches, it is recommended that they be of corrugated iron construction with a minimum of skeleton wooden framework, and of portable design so they can be moved from ship to ship as needed. If fire-resistant tarpaulins are used for this purpose the woodwork should be kept at a minimum.

** 5. Continuous good housekeeping throughout all sections of the hulls is essential. At the termination of each shift a thorough inspection should be made of the entire ship. The apparent difficulty experienced in getting a whirley to remove the rubbish boxes should be worked out and the boxes removed as often as necessary to prevent excessive accumulation. Where ventilation ducts or other installations at the hatches prevent the removal of boxes debris should be brought out by hand or other means if necessary and not allowed to accumulate. As hulls near completion, combustible crates and other packing materials must also be promptly removed.

** 6. Continue present practice of requiring burner and welder tips to be disconnected from the oxy-acetylene lines and returned to tool room at the termination of each shift to assure valves at tanks are shut off.

** 7. The number of approved metal oily waste cans now distributed, principally in the steering gear, paint storage and engine room compartments, is insufficient and should be increased to a number adequate to service all areas where oil or paint soaked rags may be present. These cans should be emptied regularly and the practice of placing paint or oil soaked rags in the rubbish boxes postponed until such time as the boxes are to be actually removed from hulls.

** 8. Remove all combustible material from the immediate vicinity of welding and cutting operations or protect nearby woodwork with incombustible surfacing. Firemen should be constantly on duty where welding and cutting is done and there is any possibility of a fire resulting; it is particularly necessary as ships near completion and decks or bulkheads are cut, when a man should be on duty on each side.

** 9. Continue strict prohibition of smoking on outfitting wharves and aboard ships.

** 10. It is recommended that the present supply of soda acid, carbon dioxide and carbon tetracloride fire extinguishers in the number or approximately 10 to 14 units on each hull be augmented by additional extinguishers of these types and ones of 2½ or 5-gallon pump-can type to an extent where approximately 25 extinguishers are on each hull as a minimum. This number should be further increased as ships near completion. The present number of three all-service gas masks should also be proportionately increased on each vessel.

** 11. Where portable oil-fired rivet heated furnaces are required, they should be safely located, preferably above deck. Diesel oil for the furnaces should be transported to and from the oil warehouse in approved flammable liquid safety cans and use of the present light metal cans without caps on outlets discontinued.

** 12. The present installation of two hose lines on the top deck of each hull is insufficient because all parts of the ships cannot be reached. In order to have an adequate hose protection system, it is recommended that a pipe line at least 3-inches in size be run fore and aft on the top deck with water connections through 2½-inch hose lines at each end connected to available wharf hydrants. A sufficient number of 1½-inch hose outlets should be provided on the deck at the approximate location of each hatch and where necessary pipe risers installed below to the lower decks with additional hose outlets thereon. In a general way the outlets should be arranged so that with hose not over 100-feet in length attached to each all parts of the ship can be reached with a hose stream. The piping system should be kept under pressure at all times so the hose lines can be put in service at the valves to which they are connected. It would be desirable to use shut-off type nozzles, preferably of "[illegible] type".

** 13. Insofar as practicable it would also be desirable to organize a small number of the regular workmen on each shift into a volunteer fire brigade to aid the paid firemen in emergency. The auxiliary firemen could be summoned by pre-determined signals sounded on suitable pocket whistles carried by the regulars. It would also be well to post precise emergency instructions on the gangplank at each hull governing activity and disposition of workers in emergency.

** 14. Require the "Fire Inspection Report" recently initiated to be filled out and submitted following each shift. This should cover pertinent conditions aboard, particularly condition of fire

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protection equipment and items requiring correction, such as refuse accumulations.

15. Maintain adequate illumination of the outboard sides and counters in such a manner that the lights do not interfere with navigation.

61. With regard to the hulls on the ways present measures seem reasonably secure with the exception that they should be gradually increased from the time each keel is layed until the precautions approximate when launched those of hulls afloat. When launched, the hulls should have the hose system in place so it can be immediately placed in service when the ship is berthed.

62. The shipways are protected by a continuous floating log boom across the waterfront, but the wharves are not so protected along outboard sides. Accordingly, consideration should be given to protecting hulls afloat in a similar manner. This can be accomplished by providing rows of dolphins parallaling the outfitting wharves at a distance of 75 feet or so from the ships with continuous floating log booms installed between and extending around piers at northeast corner of plantsite. The practicability of such should be investigated in cooperation with the Captain of the Port, Tacoma.

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SEATTLE-TACOMA SHIPBUILDING CORPORATION
(Tacoma Division)

1 June 1942

PASSIVE DEFENSE RECOMMENDATIONS

All initial ordinary steps and the majority of additional recommended measures contained in Assistant Secretary of the Navy letter 3 March 1942, Serial 124602, addressed to Mr. C. D. GILLET, Chief Engineer, enclosing a Navy Department pamphlet entitled "A Typical Passive Defense Plan for an Industrial Plant", appear to have been taken care of satisfactorily as a whole, or plans formulated to do so. The purpose of these recommendations is to point out the more apparent conditions observed wherein the present Plan does not fully meet with the aforementioned requirements and to further assist in the orderly development of a comprehensive passive defense program. It is assumed that the program will be extended to cover the adjoining Peterman Manufacturing Company when this plant is incorporated in the operation.

Although the Navy Department requires that certain minimum measures already recommended be developed immediately, the subject of Passive Defense is so new that progressive development of application is necessary. The Armed Services and Office of Civilian Defense are still in process of coordinating ideas and determining ultimate precautionary measures for the locality, so in the future further information and instructions will undoubtedly be furnished. In the meantime the program already at hand should be developed to the fullest degree and consideration given to carrying out the more material recommendations listed below as soon as possible:

1. During inspection Mr. Purcell, Internal Security and Passive Defense Coordinator, was furnished virtually all available Office of Civilian literature on the subject. This should be further reviewed, evaluated and studied insofar as its application can be applied to the development of a total program.

2. Continue organization of plant defense units along lines outlined in the booklet entitled "A Typical Passive Defense Plan for an Industrial Plant." It is understood that to date the organization has been confined to employees on the night shifts; the day shifts should be similarly organized as soon as possible. There should be at least one, and preferably more, auxiliary

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fire squads assigned to each fire division into which the plantsite will be divided. The organization should include specialists who are thoroughly familiar with the water, electrical, acetylene, etc. services, and in a general way should supplement, rather than consist of, the present watchman, guard and fireman forces, although they are a vital part. The guard force must not be burdened with collateral duties, because in the event of an air raid their regular duties assume even greater importance to guard against other forms of undercover attack.

Some phases of the Plan, such as camouflage, gas defense, demolition and bomb removal, it is believed can best be organized in cooperation with the proper military and civilian defense authorities and instructions in concrete form with regard to these will undoubtedly be received in the future.

Further organization should include proper indoctrination, instruction and training of groups by use of lectures, moving pictures, and encouragement of at least key men to attend various schools conducted by the Office of Civilian Defense. In order to develop proficiency and coordination for times of emergency the groups should be drilled individually and collectively on all shifts under simulated conditions, which should be planned to call for a minimum of disruption to production.

It must be realized that during an air attack the plant will in all probability be left entirely to its own devices and continuation of the present Plan to have the organization an entirely separate unit without depending upon City of Tacoma facilities in emergency is commendable, and should be developed to the highest degree.

3. In the Internal Security Section of this report it has been recommended that the most important American District Telegraph Company alarm services be energized at the plant so the circuits are entirely self-contained and independent of other circuits in the district and their uptown central station. The plant telephone services should be similarly self-contained.

4. It is understood that present plans are to establish the coordinator headquarters for active emergency direction in hallway on second floor of main office building. It is believed a better plan would be to have the coordinator's office within

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a central headquarters already recommended in the Internal Security Section as a headquarters for the guard and fireman forces. Such a headquarters should preferably be of extra heavy reinforced concrete construction with wall openings kept to a minimum and properly splinter-proofed. In addition to serving as a headquarters for the American District Telegraph Company alarm services it would be desirable to move the telephone switchboard and equipment now located in the main office where it is difficult to provide splinter protection, into the headquarters so all the communication systems and action forces will be centralized. The proposed special telephone line with unlisted number for communication with the Tacoma Office of Civilian Defense center is recommended.

5. Even though arrangements have been made to receive air raid warnings over a special telephone line with unlisted number to the gate house and blackout tests have been held, night inspections revealed that some of the personnel were not as familiar with the required procedure as they should be and there appears to be some minor difficulties in the actual procedure which were not revealed in the test blackouts because key personnel were aware of the simulation. These are listed as follows:

   (a) At the gate house the guards seem to have a good idea of what to do if yellow, blue and red warnings are received progressively, but were not quite sure what to do if a red signal should be received first, not preceded by a blue or yellow. Precise typed instructions are needed therefore at the gate house covering full detail.

   (b) Similarly, at the time of first inspection no definite instructions were provided for the electricians, but these were later typed up and were available at the time of a later night inspection. However, upon interviewing the substation operators and other electricians designated for blackout stations there seemed to be quite a bit of confusion and misunderstanding on the exact procedure desired. For instance, the substation operators thought that the switches should be pulled three minutes after the whistle started blowing, whereas present instructions stated it was three minutes after the whistle stopped blowing. Other misunderstandings also existed. For this reason complete and definite typed instructions should be typed and posted at each substation and at each blackout station about the plant.

(c) The telephone bell on Local 314 in the electric shop is of insufficient strength to be heard at a reasonable distance from the telephone. It should be augmented by a large auxiliary bell.

(d) With the generator sets running in the substations, under certain conditions it is difficult to hear the plant whistle. Single stroke gongs should be installed in each substation with connection from the main whistle circuit.

(e) Some of the wiring circuits appear complicated from a blackout standpoint and should be simplified insofar as practical. The lights inside substation #1 are controlled by a switch in steel shop "A", which in turn is supplied from substation #2. The lights inside substation #2 are controlled by a switch inside steel shop "B". Furthermore, it is understood the hospital lights are supplied through a switch in shop "A", which requires that the main switches for shop "A" be left in service and shop "A" blacked out at individual branch circuits.

(f) Present instructions are to not open the restaurant or steel shop "A" main switches in substation #2, by reason of the fact that the refrigeration equipment in restaurant and the hospital light circuits from shop "A" are desired to be left in service as mentioned above. If the hospital circuit was supplied direct from one of the substations it would then be possible to pull shop "A" in the substation and not depend upon all of the branch circuits being correctly handled. In any event, it would appear desirable to pull all the light switches in the substations and restore such circuits as are needed later, after assurance specific branch circuits have been shut off.

(g) Suitable low intensity amber blackout lights are needed in the substations, at certain secondary switchboards and at other locations to furnish in general assistance to personnel who must be on the move about the plantsite during blackouts. In this connection, it would be desirable to outline curbs, walkways, building entrances, gang planks, planks to stagings, etc. with white lines for assistance in darkness. Hydrants and hose cart houses are already painted white; other important pieces of equipment could be painted likewise.

(h) The mold loft boiler room and hospital are the only buildings at present physically blacked out. Other areas determined necessary for control of safety to personnel and direction of activities, such as first air stations, guard, firemen and coordinator headquarters, etc. should be physically blacked out also and the entrances thereto equipped with so called light-locks.

6. In the installation of additional illumination facilities it is recommended that careful consideration be given to the type of lights provided, because it is a known fact that engineered lighting fixtures have a distinct advantage over ordinary floodlights or globes equipped with shades, since they project a uniform or shaped pattern according to requirements efficiently. The Armed Services and Office of Civilian Defense are now in the process of studying the effect of upward light(skyglow) over cities as an aid to enemy air navigators. Skyglow can be reduced as much as 75 percent by proper lighting and the possibility is imminent of promulgation of orders to the effect. This would probably require that all present floodlights be tilted downward or shielded to an extent that no upward light past the horizontal from a particular source point is projected by a fixture. To comply with such an order would require considerable alteration in some of the present floodlights, hence use of engineered luminaires which are more efficient anyway is recommended.

7. The safety and first aid groups, and equipment, appear organized as a whole in a satisfactory manner, and it is suggested the present plans for rescue squad organization be carried out and the first aid members be prevailed upon to attend regular courses of study and the plant sponsor classes in this connection. It would also be desirable to carry out the present plans of obtaining three standard Office of Civilian Defense field hospital units for distribution at separated points in the yard and to provide dispersed first aid stations.

8. Present facilities to combat incendiary bombs are generally good but should be supplemented. The matter of sufficient ladders for accessability to roofs, the provision of hoses on roofs and other ordinary fire protection measures has been recommended in the Internal Security Section of this report. Some of the containers had not been filled with dry sand at the time of inspection and the sand stations

should be provided with rakes, goggles and heavy gloves in addition to the shovels now located at each. The present supply of portable fire extinguisher equipment appears reasonably adequate as a whole, but could be checked over to be sure one unit is available for at least every 2500 square feet of building area on each floor. It should be realized that during an air raid entire reliance for fire protection may fall on first aid equipment, so it would be desirable to distribute water barrels and pails within buildings and on roofs as a reserve water supply for pump cans.

9. High explosive bombs are liable to damage or destroy both public and secondary sources of water supplies during an air raid. They are also liable to damage or destroy portions of the underground yard water system, which makes it necessary that the layout of mains be clearly understood by personnel, particularly the location of sectional control valves which may be used to permit continued use of certain portions of the water system even when other sections are rendered useless. The provision of adequate valves for sectionalising the mains is therefore even more necessary than in peace time and the present layout should be studied with a view toward installation of additional valves where determined necessary.

10. It is recommended that at least four standard gasoline engine driven trailer-pumpers of 500 G.P.M. capacity each with the full complement of miscellaneous apparatus be provided for emergency use to take suction from the bay and waterways. These should be dispersed and suitable sites for taking suction selected, making special arrangement for suction sites at extreme low tide when excessive lift will materially reduce the efficiency of a pump. Several trailer-pumpers having suitable couplings for use with the plant tractors are favored in lieu of one city-type motorized fire truck, because they are less expensive per comparable pumping capacity and can be dispersed.

11. Vital installations should be protected against bomb splinters by use of sandbags, sand-filled concrete blocks, brickwork or concrete. In general this protection should extend to machinery, equipment and supplies which

are difficult to replace or the destruction of which would interfere with production. Some locations in mind to be considered as vital areas are the substations, transformer installations, switchboard houses, compressor houses, acetylene generator house, oxygen manifolding house, petroleum gas installations, oil pumping equipment, the hospital and supplementary first aid stations, vital communication centers including the telephone switchboard and telephone equipment rooms, and the guard, firemen and coordinator headquarters. Others, particularly at irreplacable and vital productive machinery, no doubt exist.

The Passive Defense Plan calls for an organization for the repair of buildings and equipment and the restoration of facilities damaged by air attack. In addition, it would be desirable insofar as practical to store material and equipment for this purpose at strategic points. The matter of obtaining spare transformers or having arrangement for their availability in emergency, has already been mentioned in the Internal Security Section.

12. Effective camouflage requires a large amount of study and planning and will necessarily be taken care of by proper authorities. In the meantime it is desirable that the plant be as unobtrusive as possible from aerial observation, with particular reference to some pieces of equipment like the whirley cranes and hulls which are painted a bright red lead and should be of a dull color so as to appear as inconspicuous as practicable in their surroundings. The yard equipment and whirleys should be the same color as the rest of the plant, which is a gray. Hulls should be painted Navy gray as soon as possible after the red lead is applied. It is understood that the most unobtrusive color for waterfront property is usually a flat dark gray-green, but other features require that the exact color be determined by experts.

13. Storage of chlorine at the Hooker Electrochemical Company near the plantsite is a matter of considerable concern, both from the standpoint of a normal accident and the possibility of damaging the storage tanks or equipment, and under proper weather conditions, gassing employees. They have five 60 ton capacity chlorine storage tanks located between two brick buildings near the south boundary of the shipyard parking area. The storage tanks are of 3/4-inch steel plate fabrication with 6-inch cork outside

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insulation. Tank cars of 30 ton capacity are of similar I.C.C. regulation construction, but with 1/8-inch steel shells outside the cork insulation. Although the storage tanks are of 300 ton total capacity it is understood that never over 250 tons of chlorine are in storage, and the average maximum amount during the last few months has been 60 to 100 tons. This is transferred daily to tank cars on road spur at nearby loading rack; thus the amount is either in the storage tanks or in the tank cars.

In addition, the Pennsylvania Salt Manufacturing Company of Washington, located about 3/4 of a mile south of the plantsite, has a similar but somewhat smaller chlorine manufacturing operation. An average of 4 to 5 tank cars of chlorine are also said to be in storage at the St. Regis Pulp Mill about one-half mile west of the plantsite.

In order to protect against this hazard, it is believed provision of gas masks for employees of the company should receive high priority as far as these are furnished to civilians in the City of Tacoma. The number of gas masks available on the plantsite should be at least a number sufficient to equip all employees on any one shift. They could be kept at conveniently located stations on the plantsite.

As mentioned above the five 60 ton storage tanks at the Hooker Electrochemical Company are set between and partially protected by two buildings of heavy brick construction; namely, the chlorine drying building on the east and refrigeration building on the west. To completely protect the storage tanks against bomb splinters it is suggested that the north and south ends of the tanks be enclosed with heavy masonry walls or sandbagged. Also that sandbags or masonry walls be installed along each side of the railroad spur at the loading rack to protect tank cars being filled or ones which are full awaiting shipment. It is believed impractical to attempt to protect the chlorine storage against a direct hit by an aerial bomb, but the tanks and cars can be quite easily protected against bomb fragments as outlined, thus lessening the hazard to a material extent. The south walls of the drying and refrigeration buildings are of temporary corrugated-iron construction; to protect the chlorine in process within these units it would appear desirable to also sandbag these

south walls as well as window and door openings in the masonry walls on other exposed sides.

14. Attention is also invited to the considerable amount of gasoline and fuel oil storage near the plantsite. The Hooker Electrochemical Co. has two small fuel oil tank farms of 21,000 barrels combined capacity, the Fletcher Oil Co. a farm of 60,000 barrels capacity and the Maxwell Petroleum Corp. a farm of 108,000 barrels capacity. The first has a standard concrete dike system, the latter two farms are provided with standard earth dikes. There is a possibility of aerial bombs rupturing the tanks and dikes thereby releasing flaming gasoline and oil, but due to the distance from the plantsite and the absorbent quality of the hydraulic sand-filled ground it is doubtful under normal conditions whether there is much danger from this source on the land side. However, if a dike should be ruptured near the water side of the farms, outfitting wharf No. 3 and the ships berthed along the Kylebos Waterway might be endangered. The matter of providing proper masonry splinter protection around each tank and auxiliary dike systems for each farm is in the same category as camouflage and the protection against chlorine hazard, which must necessarily be considered from the standpoint of the peninsula as a whole and acted upon accordingly. Due consideration to the features is recommended.

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UNITED STATES MARITIME COMMISSION

Washington

April 28, 1942

Seattle-Tacoma Shipbuilding Corporation
2400 Eleventh Avenue, S. W.
Seattle, Washington

Gentlemen:

In accordance with an understanding previously reached between representatives of your Company, the Navy Department, and this Commission, it is proposed to cancel the contract dated September 30, 1940 covering the construction of the vessel designated Builder's Hull No. 9 (Contract No. MCc-1065), the two contracts dated October 30, 1940 covering the construction of the vessels designated Builder's Hull Nos. 10 and 11 (Contract Nos. MCc-1188 and MCc-1189), and the contract dated May 10, 1941 covering the construction of thirty C-3 vessels designated Builder's Hull Nos. 17-46, inclusive (Contract No. MCc-1516. Such cancellation will be effective as of April 30, 1942.

This Commission will pay to your Company all amounts to which you are entitled up to and including April 30, 1942 under the provisions of Article 2 of each of the agreements dated April 13, 1942 modifying and supplementing the aforementioned contract dated September 30, 1940, and two contracts dated October 30, 1940, and all amounts to which you are entitled up to and including April 30, 1942 under the provisions of paragraph (a) of Article 15 of said contract dated May 10, 1941. Upon the making of such payments, the Commission shall be released of each and every of its obligations under the aforementioned contracts, and your Company will enter into contracts with the Navy Department for the completion of all the vessels to be constructed under such contracts.

The cancellation of said contracts dated September 30, 1940, October 30, 1940 and May 10, 1941 shall not have the effect of divesting the United States of America or the Commission of title to any material, equipment, supplies or other property acquired under the provisions of such contracts, and it is expressly understood and agreed that title to all uncompleted vessels and to all materials, equipment, supplies and other property assembled at your shipyard or elsewhere for the purpose of being used for the construction of such vessels, as well as title to any material, machinery and supplies ordered for use in connection with the

EXHIBIT (A)

(A)

performance of work under said contracts on account of which the Commission or your Company has made payment shall vest in the United States of America. Such of said machinery, material, supplies and other property as may be necessary for use in connection with the performance of the work under the contracts to be entered into between your Company and the Navy Department may be used by you for the purpose of completing the aforementioned vessels, subject to the terms and conditions of said contracts. Custody of all the remainder of said materials, machinery, supplies and other property shall be taken by the duly authorized representatives of the Commission who may remove and dispose of the same in such manner as the Commission may deem desirable.

Notwithstanding any of the provisions of the contract dated May 10, 1941, between the United States of America, represented by the Commission, and your Company for the construction of certain shipyard facilities at Tacoma, Washington, as amended, or the aforementioned contract bearing the same date for the construction of thirty C-3 vessels, you may use such shipyard facilities for the purpose of performing work under contracts heretofore or hereafter entered into between your Company and the Navy Department.

If the terms and conditions of this letter are satisfactory to you, please signify the acceptance on the space indicated therefor below.

Sincerely yours,

(Sgd.) E. S. LAND
E. S. LAND
Chairman

ACCEPTED:

Seattle-Tacoma Shipbuilding Corporation

By: JOHN D. REILLY

Vice President
(Title)

EXHIBIT (A)

March 30, 1942

United States Maritime Commission

Acting Director, Construction Division

Air Reduction Company, Inc. - Oxygen Facilities - Seattle-Tacoma Shipbuilding Corporation - Seattle, Washington

Since January, 1941, the need for oxygen production facilities in the Seattle area has greatly increased due to the tremendous increase in demand for oxygen for the Navy and Maritime Commission in connection with their expanding shipbuilding programs. It has been found necessary to install additional productive facilities for oxygen to be available for the work to be performed by Seattle-Tacoma Shipbuilding Corporation. As a result of the foregoing, Air Reduction Company, Inc. has been requested to submit a proposal covering the requirements necessary to provide additional facilities for the production of approximately 6,700,00 cubic feet per month of oxygen of a guaranteed purity of 99.5%, together with a statement as to the portion of such facilities which in the opinion of the company would have to be financed by the Commission. The facilities will be required to be in operation not later than August 1, 1942.

Under the proposal submitted by Air Reduction Company, Inc. it is estimated that the cost of the necessary facilities will be approximately $355,605.00, exclusive of the cost of the land upon which the facilities will be located. This cost is broken down as follows:

Facilities to be financed by the Commission (See Schedule "A" attached)	$263,980.00
Oxygen Processing Unit, Designed, Fabricated and installed by Air Reduction Company, Inc., (See Schedule "B" attached)	91,625.00
TOTAL	$355,605.00

The facilities are to be constructed and installed on real estate owned or to be owned by Air Reduction Company, Inc. contiguous to the premises of Seattle-Tacoma Shipbuilding Corporation.

It is proposed that the Commission shall enter into a facilities agreement with Air Reduction Company, Inc. in substantially the same form as that heretofore approved by the Commission in connection with other types of essential industrial facilities, pursuant to which Air Reduction Company, Inc. will construct and install the necessary facilities pursuant to the Commission's agreement to reimburse it for all costs in connection with that portion of the facilities covered by Schedule "A" and upon agreement of Air Reduction Co., Inc. to furnish all necessary oxygen to Seattle-Tacoma Shipbuilding Corporation for use in the construction of vessels by that corporation for the Commission. The agreement is to provide for the payment of rental to the Commission by Air Reduction Company, Inc. at the rate of 7 cents per 100 cubic feet of oxygen produced by the facilities during a period of five (5) years, or such longer or shorter time as may be necessary for the complete amortization of the Commission's investment therein, with the understanding, however, that in the event of termination of the facilities contract by the Commission prior to complete repayment of the amount of said investment, the Commission will have the option to sell the facilities to Air Reduction Company, Inc. as of the date of termination. In the event of the exercise of

EXHIBIT (B)

such option by the Commission, Air Reduction Company, Inc. shall be obligated to purchase the facilities at such price. During the period of operation of the facilities under the foregoing arrangement the real estate will be leased to the Commission by Air Reduction Company, Inc. at a nominal rental.

Under this proposal it is understood that, subject to the approval of the Commission, oxygen may be supplied from the facilities to the Navy Department or other Governmental agencies and their contractors. The oxygen sold by Air Reduction Company, Inc. to the Commission's contractors will be sold at prices subject to the approval of the Commission.

RECOMMENDATION:

It is recommended that the Commission approve the proposed expension of the facilities of Air Reduction Company, Inc. at Seattle, Washington, in accordance with the foregoing and authorize the Chairman to execute a facilities agreement with said company for the construction and installation of additional facilities at a cost not to exceed $264,000.00, with the understanding that the company will complement said facilities with essential equipment having a value of approximately $91,625.00; that Air Reduction Company, Inc. will pay to the Commission rental for said facilities at the rate of 7 cents per 100 cubic feet of oxygen produced by the facilities for a period of five (5) years or such longer or shorter period as may be necessary for complete repayment of the amount paid by the Commission for the facilities; and that in the event of termination of the facilities agreement prior to complete amortization of the costs paid by the Commission, the Commission shall have the option to sell the facilities to Air Reduction Company, Inc. for an amount equal to 25% of the difference between the amount of such costs and the rental paid by the company as of the date of termination.

(Sgd.) C. W. FLESHER
C. W. Flesher
Acting Director
Construction Division

APPROVED:

H. L. VICKERY
Commissioner

APPROVED:

(Sgd.) R. E. ANDERSON
R. E. Anderson
Director of Finance

NO LEGAL OBJECTION:

(Sgd.) WADE H. SKINNER
Wade H. Skinner
Assistant General Counsel

Form M-91

Retarded ◥ Advanced

SEATTLE-TACOMA SHIPBUILDING CORP. - TACOMA DIVISION

PAGE 1 "A"

LATEST ESTIMATED ARRIVAL DATES - NAVY GASOLINE TANKERS AOG 1-5

Report No. 9 — May 16, 1942

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
AIRPORTS		BUSHCRAFT MARINE CORP.	3471 Here	3472 Here	3473 5-18-42 ◥	3474 6-3-42 ◥	3475 6-3-42 ◥
ANNUNCIATOR, CONTACT MAKER		VIKING INSTRUMENT, INC.	3541 6-15-42	3542 6-15-42	3543 6-15-42	3544 6-15-42	3545 6-15-42
ANNUNCIATOR, HORNS, SIRENS, PUSHBUTTONS		BENDIX AVIATON CORP., Mar. Dh. THRU: PAC. MARINE SUPPLY	3496 Part Here	3497 Part Here	3498 No Promise	3499 No Promise	3500 No Promise
ANCHORS		BALDT ANCHOR, CHAIN & FORGE CO.	621 Here	622 Here	623 Here	624 Here	625 Here
ARRESTORS, FLAME	INERT GAS SYSTEM & GASOLINE TANK	JOHNSTON & JENNINGS CO.	4010 6-1-42	4010 6-1-42	4010 6-15-42	4010 6-15-42	4010 6-15-42
ARRESTORS, DUST & SPARK	ENGINE EXHAUSTS	ENGINEERING SPECIALTIES CO. Inc.	4036 5-30-42	4036 5-30-42	4036 5-30-42	4036 5-30-42	4036 5-30-42
ANALYZER, GAS	INERT GAS SYSTEM	ENERGY CONTROL CO.	4189 No Promise	4189 No Promise	4189 No Promise	4189 No Promise	4189 No Promise

CONFIDENTIAL

EXHIBIT (T)

DECLASSIFIED PER EXECUTIVE ORDER 12356, SECTION 3.3, NND PROJECT NUMBER NND 760622, BY [signature], DATE 12/9/11

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
BATTERIES, STORAGE		U. S. L. BATTERY CORP OF CALIF.	3666 7-7-42	3667 7-7-42	3668 9-20-42	3669 9-20-42	3670 9-20-42
BEARINGS, LINE SHAFT		AMERICAN METAL BEARING CO.	801 Here	802 Here	803 Here	804 Here	805 Here
BEARINGS RUDDER, FURNISH & MACHINE		DRAVIS ENGINEERING & MACHINE WORKS	3466 No Promise	3467 No Promise	3468 No Promise	3469 No Promise	3470 No Promise
BLINKER LIGHTS & KEYS		LOVELL-DRESSEL COMPANY	515 5-18-42 (?)	516 5-18-42 (?)	517 7-15-42	518 7-28-42	519 7-28-42
BITTS, MOORING		BY-PRODUCTS STEEL CORP.	596 Here	597 Here	598 Here	599 Here	600 Part Here
BOXES, FUSED DISRIBUTION		MENDELL ELECTRIC MFG. CO.	641 Here	642 Here	643 Here	644 Here	645 Here

CONFIDENTIAL

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
CHAINS, FOR ANCHORS		BRIDGEPORT CHAIN & MFG. CO.	3451 6-20-42	3452 7-11-42	3453 8-1-42	3454 8-22-42	3455 9-12-42
CASTING, STEM & FOREFOOT		ATLAS FOUNDRY & MACH CO.	606 Here	607 Here	608 Here	609 Here	610 Here
CHOCKS, ROLLER MOORING		PACIFIC IRON & STEEL CO.	601 Here	602 6-1-42	603 6-1-42	604 7-1-42	605 7-1-42
CONTACT MAKERS		HENSCHEL CORPORATION	3551 6-27-42	3552 6-27-42	3553 9-10-42	3554 9-10-42	3555 9-10-42
CHOCKS, C. S. MOORING		ATLAS FOU^DRY & MACH, C .	701 Here	702 Here	703 Here	704 Here	705 Here
CONNECTION BOXES JWT. DOOR SWITCHES		BETTS & BETTS CORP.	3316 Part Here Bal. 5-21-42	3317 Part Here Bal. 5-21-42	3318 Part Here Bal. 5-21-42	3319 Part Here Bal. 5-21-42	3320 Part Here Bal. 5-21-42
CONDENSER EXCESS STEAM & DRAIN COOLER	STEAM CONDENSING SYSTEM	WORTHINGTON PUMP & MACHINERY CORP.	4017 No Promise	4017 No Promise	4017 No Promise	4017 No Promise	4017 No Promise
COMPRESSOR, FLUE GAS	INERT GAS SYSTEM	ROOTS-CONNERS-VILLE BLOWER CORP.	3661 No Promise	3662 No Promise	3663 No Promise	3664 No Promise	3665 No Promise

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
DRILL, UPRIGHT		CINCINNATI BICKFORD TOOL CO.	693 6-15-42	694 6-15-42	695 7-1-42	696 7-15-42	697 7-15-42
DAVITS, LIFEBOAT		LANE LIFEBOAT & DAVIT CORP.	3446 Will Ship When Approved	3447 Will Ship When Approved	3448 Will Ship When Approved	3449 Will Ship When Approved	3450 Will Ship When Approved
DOORS, GALV. STRUCTURAL		HEINTZ MFG. COMPANY	3606 6-15-42	3607 7-1-42	3608 7-15-42	3609 8-1-42	3610 8-15-42
DUMBWAITER, HAND WINCHES FOR		NORTHWEST MACHINE WORKS	3421 Here	3422 Here	3423 Here	3424 Here	3425 Here
*DISTILLER AND EVAPORATOR	S. W. EVAPORATING PLANT	DAVIS ENGINEERING CORP.	3896 7-15-42	3897 8-1-42	3898 8-15-42	3899 9-15-42	3900 10-15-42
DUMBWAITER CARS		NORTHWEST MACHINE WKS.	4182 Here	4182 Here	4182 Here	4182 Here	4182 Here
							"E"
*EVAPORATOR AND DISTILLER	S. W. EVAPORATING PLANT	DAVIS ENGINEERING CORP.	3895 7-15-42	3897 8-1-42	3898 8-15-42	3899 9-15-42	3900 10-15-42

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
FAN, BRACKET		ROBBINS & MYERS, INC.	551 Here	552 Here	553 Here	554 Here	555 7-28-42
FANS, VENTILATING		LA-DEL CONVEYOR & MFG. CO.	3581 8-10-42	3582 8-10-42	3583 8-10-42	3584 8-10-42	3585 8-10-42
FATHOMETER		SUBMARINE SIGNAL COMPANY	591 7-1-42	592 7-1-42	593 7-1-42	594 9-1-42	595 9-1-42
FILTERS, MULT. DISC.		CUNO ENGINEERING CORP.	3406 Cannot Determine	3407 Cannot Determine	3408 Cannot Determine	3409 Cannot Determine	3410 Cannot Determine
FLOODLIGHTS		CROUSE-HINDS COMPANY	525 5-28-42	526 5-28-42	527 7-15-42	528 7-28-42	529 7-28-42
CO2 FIRE EXTINGUISHERS		WALTER KIDDE CO.	4148 5-18-42	4148 5-18-42	4148 5-18-42	4148 5-18-42	4148 5-18-42
CARBONA FIRE EXTINGUISHERS		AMERICAN LaFRANCE FOAMITE CORP.	4145 6-1-42	4149 6-15-42	4149 7-1-42	4149 7-15-42	4149 8-1-42
FUNNEL ASSEMBLIES STORM OIL DISCHARGE	STORM OIL SYSTEM	BOYLE MFG. CO.	4007 Here	4007 Here	4007 Here	4007 Here	4007 Here

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
GAUGES,TANK		JOHNSTON & JENNINGS CO. THRU: GEORGE T. BLOOM	3731 5-6-42	3732 6-6-42	3733 7-25-42	3734 7-25-42	3735 7-25-42
GENERATOR SETS, LIGHTING MOTOR		WESTINGHOUSE ELECTRIC & MFG. COMPANY	3292 6-20-42	3293 6-20-42	3294 8-20-42	3295 8-20-42	3296 8-20-42
GENERATOR, STEAM		GENERAL FURNACE CORP.	3326 Cannot Determine	3327 Cannot Determine	3328 Cannot Determine	3329 Cannot Determine	3330 Cannot Determine
GRINDERS, FLOOR PEDESTAL		JAMES CLARK, JR. ELECTRIC COMPANY	561 5-24-42	562 5-24-42	563 8-15-42	564 8-28-42	565 8-28-42
GAUGE	F. W. SYSTEM AFT.	PERNBERTHY INJECTOR CO.	4123 Here	4123 Here	4123 Here	4123 Here	4123 Here
GALLEY & PANTRY EQUIPMENT		S. BLICKMAN, Inc.	4077 Cannot Determine	4077 Cannot Determine	4077 Cannot Determine	4077 Cannot Determine	4077 Cannot Determine
GAUGES, TANK	F. O. SERVICE	PNEUMERCATOR CO.	4196 6-30-42	4196 6-30-42	4196 6-30-42	4196 6-30-42	4196 6-30-42

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ITEM	USED FOR	USED FOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
HEATERS, FRESH WATER		FRANK HEATERS, INC.	791 5-28-42	792 5-28-42	793 5-28-42	794 5-28-42	795 5-28-42
HEATERS, VENTILATION		MODINE MFG. CO.	4012 5-31-42	4012 5-31-42	4012 8-16-42	4012 8-30-42	4012 8-30-42
HOISTS, AMMUNITION WHIP		HARNISCHFEGER CORP.	4115 Cannot Determine	4115 Cannot Determine	4115 Cannot Determine	4115 Cannot Determine	4115 Cannot Determine
HOISTS & TROLLEYS, CHAINS	LIFTING GEAR	WRIGHT MFG. DIV. OF AMERICAN CHAIN & CABLE	4230 No Promise	4230 No Promise	4230 No Promise	4230 No Promise	4230 No Promise

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
INDICATOR, TRANSMITTER RUDDER ANGLE		BENDIX AVIATION CORP., Mar. Div. Thru: PAC. MARINE SUPPLY	683 Cannot Determine	684 Cannot Determine	685 Cannot Determine	686 Cannot Determine	687 Cannot Determine
INDICATORS, LAMP TYPE		LOVELL-DRESSEL COMPANY	636 5-19-42	637 5-19-42	638 5-19-42	639 5-19-42	640 5-19-42

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
LATHE, ENGINE		REED-PRENTICE CORP.	688 Part 5-30-42	689 Part 5-30-42	690 8-1-42	691 8-1-42	692 8-1-42
LIGHT FIXTURES, RUNNING		LOVELL-DRESSEL COMPANY	510 Part here Bal. 5-21-42	511 Part here Bal. 5-21-42	512 Part Here Bal. 5-21-42	513 7-28-42	514 7-28-42
LIGHTING FIXTURES, ORNAMENTAL		DAYTON MFG. COMPANY	871 5-24-42	872 5-24-42	873 5-30-42	874 5-30-42	875 5-30-42
LOCKERS, STORAGE	BATTLE TELEPHONES	BRAKO CO.	4229 No Promise	4229 No Promise	4229 No Promise	4229 No Promise	4229 No Promise

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
MANIFOLDS, C. S.		ALHAMBRA FOUNDRY CO.	726 Pat Here	727 6-1-42	728 Part 5-18-42 Bal. 6-16-42	729 Part 5-18-42 Bal. 6-16-42	730 Part 5-18-42 Bal. 6-16-42
METERS, GASOLINE		WILLIAM E. WILLIAMS, INC.	3481 6-4-42	3482 6-6-42	3483 7-22-42	3484 9-5-42	3485 9-5-42
MOTION PICTURE PROJECTOR		DeVRY CORPORATION	3491 Here	3492 Here	3493 Here	3494 Here	3495 Here
MANOMETER ALARM SYSTEM	INERT GAS SYSTEM	SHAND & JURS CO.	4054 Part 6-10-42	4054 Part 6-10-42	4054 Part 6-10-42	4054 Part 6-10-42	4054 Part 6-10-42
MANIFOLDS, C. S.	F. O. SUCTION TRANSFER PIPING	HOMESTEAD VALVE MFG. CO.	3871 6-7-42	3872 6-30-42	3873 7-5-42	3874 7-5-42	3875 7-15-42
METERS, GASOLINE	PUMP ROOM	WILLIAM E. WILLIAMS, Inc.	4050 6-5-42	4090 6-5-42	4090 6-5-42	4090 6-5-42	4090 6-5-42

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
PANEL, FIRE ALARM		BENDIX AVIATION CORP., Mar. Div. Thru: PAC. MARINE SUPPLY	3571 No Promise	3572 No Promise	3573 No Promise	3574 No Promise	3575 No Promise
PANEL, INDICATOR STEER GEAR ALARM		PELHAM ELEC. & MFG. CO.	4103 6-1-42	4103 6-1-42	4103 8-1-42	4103 8-1-42	4103 8-1-42
PANEL(POWER & LIGHT DISTRIBUTION	CANCELLED	PELHAM ELECTRIC & MFG. COMPANY	4152 5-26-42	4152 5-26-42	4152 6-15-42	4152 6-15-42	4152 6-15-42
PANEL, RUNNING LIGHT & TELLTALE		HENSCHEL CORPORATION	520 Here	521 Here	522 Here	523 Here	524 Here
PUMPS, BALLAST		ALLIS-CHALMERS MFG. CO.	741 9-15-42	742 9-15-42	743 Cannot Determine	744 Cannot Determine	745 Cannot Determine
PUMPS, BILGE		ALLIS-CHALMERS MFG. CO.	741 9-15-42	742 9-15-42	743 Cannot Determine	744 Cannot Determine	745 Cannot Determine
PUMPS, BILGE & BALLAST	BILGE & BALLAST SYSTEM	WORTHINGTON PUMP & MACHINERY CORP.	3741 11-1-42	3742 11-1-42	3743 11-1-42	3744 11-1-42	3745 11-1-42
PUMP, FEED WATER TRANSFER	M. U. FEED SYSTEM	WORTHINGTON PUMP & MACHINERY CORP.	3771 10-15-42	3772 10-15-42	3773 10-15-42	3774 10-15-42	3775 10-15-42
PUMPS, FIRE		ALLIS-CHALMERS MFG. CO.	716 Cannot Determine	717 Cannot Determine	718 7-21-42	719 8-5-42	720 8-5-42
PUMPS, HAND		DEMING COMPANY, THE	721 6-15-42	722 7-1-42	723 7-15-42	724 8-1-42	725 8-15-42
PUMPS, FRESH WATER		ALLIS-CHALMERS MFG. CO.	666 3 Months After Approval	667 3 Months After Approval	668 Cannot Determine	669 Cannot Determine	670 Cannot Determine
PUMPS, FRESH WATER CIRCULATING, HOT		ALLIS-CHALMERS MFG. CO.	987 3 Months After Approval	988 3 Months After Approval	989 Cannot Determine	990 Cannot Determine	991 Cannot Determine
PUMPS, HAND		F. E. MYERS & BROS. COMPANY	3646 Here	3647 Here	3468 Here	3649 Here	3650 Here
PUMPS, FIRE & GENERAL SERVICE		ALLIS CHALMERS MFG. CO.	73 Cannot Determine	732 Cannot Determine	733 7-21-42	734 8-5-42	735 8-5-42
PUMPS, FUEL OIL TRANSFER		BLACKMER PUMP CO.,	3321 No Promise	3322 No Promise	3323 No Promise	3324 No Promise	3325 No Promise
PUMPS, FUEL OIL TRANSFER & OILY BALLAST		BLACKMER PUMP CO.,	992 No Promise	993 No Promise	994 No Promise	995 No Promise	996 No Promise
PUMPS, ROTARY BUCKET	AVIATION L. O. PIPING SYSTEM	BLACKMER PUMP CO.	4042 No Promise	4042 No Promise	4042 No Promise	4042 No Promise	4042 No Promise
PUMPS, F. W. CIRCULATING CHILLED		ALLIS-CHALMERS MFG. CO.	3761 6-11-42	3762 6-11-42	3763 6-11-42	3764 6-11-42	3765 6-11-42

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
PUMPS, GASOLINE CARGO		ALLIS-CHALMERS MFG. CO.	746 9-15-42	747 9-15-42	748 Cannot Determine	749 Cannot Determine	750 Cannot Determine
PUMPS, GASOLINE CARGO STRIPPING		NATIONAL TRANSIT PUMP & MACHINE COMPANY	751 Cannot Determine	752 Cannot Determine	753 Cannot Determine	754 Cannot Determine	755 Cannot Determine
PUMPS, L. O. TRANSFER		BLACKMER PUMP CO., INC.	3506 Cannot Determine	3507 Cannot Determine	3508 Cannot Determine	3509 Cannot Determine	3510 Cannot Determine
PUMPS, VACUUM PRIMING		NASH ENGINEERING CO.	3401 Par 7-1-42	3402 Cannot Determine	3403 Cannot Determine	3404 Cannot Determine	3405 Cannot Determine
PUMPS, SANITARY		ALLIS-CHALMERS MFG. CO.	736 Cannot Determine	737 Cannot Determine	738 6-21-42	739 6-21-42	740 6-21-42
PROPULSION EQUIPMENT		GENERAL MOTORS CORP.	500 Cannot Determine	501 Cannot Determine	502 Cannot Determine	503 Cannot Determine	504 Cannot Determine
AUX. DIESEL GENERATOR SETS		GENERAL MOTORS CORP.	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
PROPELLER THRUST BEARINGS		GENERAL MOTOLS CORP.	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
PROPULSION CONTROLS		GENERAL MOTOLS CORP.	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
PROPULSION MOTORS		GENERAL MOTOLS CORP.	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
REDUCTION GEARS		GENERAL MOTOLS CORP.	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
PURIFIERS, L. O. & F. O.		THE SHARPLES CORP. OF CALIF.	3736 7-15-42	3737 7-15-42	3738 7-15-42	3739 7-15-42	3740 7-15-42
PLUGS & RECEPTACLES	SOUND POWERED TELEPHONE SYITEM	LOVELL-DRESSEL CO.	3855 6-1-42 Less Buttons	3857 6-1-42 Less Buttons	3858 7-1-42	3859 7-1-42	3860 7-1-42
PUMP, DISCHARGE CENTRIFUGAL	DISTILLER CIRC.	ALLIS-CHALMERS	4095 No Promise	4096 No Promise	4096 No Promise	4096 No Promise	4096 No Promise
PROPELLORS		COOLIDGE PROPELLOR COMPANY	4067 Awaiting Gauge	4069 No Promise	4069 No Promise	4069 No Promise	4069 No Promise
PUMPS, ROTARY GEAR	L. O. SYSTEM	DEMING CO.	4195 5-22-42	4195 5-22-42	4195 5-22-42	4195 5-22-42	4195 5-22-42

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
RANGE HOOD UNITS		LITECONTROL CORP.	706 Here	707 Here	708 Here	709 Here	710 Here
RUDDER FRAME HUB		PACIFIC CAR & FOUNDRY CO.	646 Here	647 At Ames	648 At Ames	649 At Ames	650 At Ames
RUDDER STERN POST		PACIFIC CAR & FOUNDRY CO.	901 Here	902 Here	903 Here	904 Here	905 Here
RUDDER STOCK		ISAACSON IRON WORKS	656 At Ames	657 At Ames	658 At Ames	659 At Ames	660 At Ames
RUDDER STOCK ASSEMBLY		AMES SHIPBUILDING & DRYDOCK	3391 5-18-42	3392 5-18-42	3393 6-30-42	3394 6-30-42	3395 6-30-42
REFRIGERATING PLANT	SHIPS SERVICE REFRIGERATION	YORK ICE MACH. CORPORATION	3726 No Promise	3727 No Promise	3728 No Promise	3729 No Promise	3730 No Promise
RECEPTACLES & PLUGS	SO. POWERED TELE. SYSTEM	LOVELL DRESSEL CO., INC.	3856 6-1-42 Less Buttons	3857 6-1-42 Less Buttons	3858 7-1-42	3859 7-1-42	3860 7-1-42

CONFIDENTIAL

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
SHAFT, REVOLUTION TRANS. & INDICATOR		ELECTRIC TACHOMETER CORP.	756 Part Here	757 Part Here	758 Part Here	759 Part Here	760 Part Here
SWITCH, SAFETY		LOVE ELECTRIC CO.	3616 Here	3617 Here	3618 Here	3619 Here	3620 Here
SWITCHBOARD, GENERATOR & DISTRIBUTION		CUTLER-HAMMER, INC.	581 6-5-42	582 6-20-42	583 7-5-42	584 7-20-42	585 8-5-42
SWITCHBOARDS, TEST		SEABOARD ELECTRIC COMPANY	535 5-26-42	536 5-26-42	537 5-26-42	538 5-26-42	539 5-26-42
STEERING GEAR		McKIERNAN-TERRY CORP.	661 Cannot Determine	662 Cannot Determine	663 Cannot Determine	664 Cannot Determine	665 Cannot Determine
SWITCHBOARD, BATTERY CHARGING		BARLOW ENGINIERING CO.	4050 6-1-42	4050 6-1-42	4050 7-1-42	4050 7-1-42	4050 7-1-42
SHAFTING, LINE & TAIL		ISAACSON IRON WKS.	826 Part Here	827 Part Here	828 Part Here	829 Part Here	830 Part Here
STERN TUBE ASSEMBLY	STERN TUBE & STRUT BEARING	H. R. L. MACHINE WORKS	3996 5-18-42	3997 5-18-42	3998 7-1-42	3999 7-1-42	4000 8-1-42
SWITCHES, EMERGENCY STOP	F. D. TRANSFER PUMP	CUTLER-HAMMER, INC.	3906 5-19-42	3907 5-26-42	3908 5-26-42	3909 5-26-42	3910 5-26-42
STRAINER, MACOMB.	AJ-17 PA-36 RG-53	McALEAR MFG. CO.	4071 6-17-42	4071 6-17-42	4071 6-17-42	4071 6-17-42	4071 6-17-42
STRAINER	F. O. SERVICE PPING	WARREN KILLION & CLARK CO.	4145 6-21-42	4145 6-21-42	4145 6-21-42	4145 6-21-42	4145 6-21-42
SEPARATOR, BRONZE	AUX STEAM & EXHAUST PIPING	DRI STEAM PRODUCTS CO.	4061 5-30-42	4061 5-30-42	4061 5-30-42	4061 5-30-42	4061 5-30-42
STRUTS, PROPELLER	PORT STRUT & STARBOARD STRUTS	WASHINGTON IRON WORKS	896 Here	897 Cannot Determine	898 Cannot Determine	899 Cannot Determine	900 Cannot Determine
STRAINER, DUPLEX	AVIATION L. O. PIPING	COEN CO.	4179 Cannot Determine	4179 Cannot Determine	4179 Cannot Determine	4179 Cannot Determine	4179 Cannot Determine
SHAFT ASSEMBLIES	VALVE OPERATING GEAR	STOW MFG. CO.	4190 5-28-42	4190 5-28-42	4190 8-15-42	4190 9-15-42	4190 9-15-42
SWITCHES—MICRO, F. O. HI LEVEL ALARM		PNEUMERCATOR CO.	4226 6-30-42	4226 6-30-42	4226 6-30-42	4226 6-30-42	4226 6-30-42
STRAINERS, MACOMB	B. & B. AFT	NORTHWEST MACHINE WORKS	4201 5-20-42	4203 5-20-42	4203 5-20-42	4203 5-20-42	4203 5-20-42
SEPARATOR, HORIZONTAL STEAM		SWARTHOUT CO.	4191 Cannot Determine	4193 Cannot Determine	4193 Cannot Determine	4193 Cannot Determine	4193 Cannot Determine

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
TANKS, FRESH WATER PRESSURE		McCULLOCH & SONS	876 Here	877 Here	878 5-18-42 (?)	879 5-18-42 (?)	880 6-15-42
TANKS, HOT WATER STORAGE		McCULLOCH & SONS	876 Here	877 Here	878 5-18-42 (?)	879 5-18-42 (?)	880 6-15-42
TANKS, SALT WATER PRESSURE		McCULLOCH & SONS	876 Here	877 Here	878 5-18-42 (?)	879 5-18-42 (?)	880 6-15-42
TANKS, STORAGE		McCULLOCH & SONS	3651 Here	3652 Here	3653 Here	3654 Here	3655 Here
TELEPHONE BOOTH		BURGESS BATTERY CO. THRU: DUSENBERY & STRACHAN	566 6-1-42	567 6-1-42	568 6-1-42	569 6-1-42	570 6-1-42
TELEPHONE, CONNECTION BOXES		BETTS & BETTS CORP.	3301 6-4-42	3302 6-4-42	3303 6-4-42	3304 6-4-42	3305 6-4-42
TELEPHONE SWITCH BOXES		HENSCHEL CORPORATION	3287 6-15-42	3288 6-15-42	3289 8-15-42	3290 8-15-42	3291 8-15-42
TELEGRAPH, ELECTRIC ENGINE ORDER		BENDIX AVIATION CORP., Mar. Div. Thru: Pacific Marine Supply Co	586 Cannot Determine	587 Cannot Determine	588 6-1-42	589 6-1-42	590 6-1-42
TERMINAL SHORE BOX		MENDALL ELECTRIC MFG. CO.	576 Here	577 Here	578 Here	579 Here	580 Here
TESTER, "SUPER-MEG" INSULATION		JAMES G. BIDDLE COMPANY	505 5-22-42	506 5-22-42	507 5-22-42	508 5-22-42	509 5-22-42
TRAPS, THERMOSTATIC	STEAM HEATING SYSTEM	THE TRANE CO.	3956 Here	3957 Here	3958 Here	3959 Here	3960 Here
TELEPHONE EQUIPMENT	INTERCOMMUNICATION	R.C.A. MFG. CO.	3601 6-1-42	3602 6-1-42	3603 8-1-42	3604 8-1-42	3605 8-1-42

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ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
VALVES, GATE		LUNKENHEIMIR COMPANY THRU: CHAS. H. HARDEN	766 Part Here	767 7-15-42	768 7-15-42	769 7-15-42	770 7-15-42
VALVES, MAIN INJECTOR		COLUMBIA MACHINE WORKS	3521 Part Here Bal. 5-18-42	3522 Part Here Bal. 5-18-42	3523 Part Here Bal. 5-18-42	3524 Part Here Bal. 5-18-42	3525 Part Here Bal. 5-18-42
VALVES, PRESSURE VACUUM RELIEF		VAPOR RECOVERY SYSTEM CO.	3656 6-17-42	3657 6-17-42	3658 7-10-42	3659 8-9-42	3660 8-9-42
VALVES, SWING CHECK		FAIRBANKS COMPANY	751 Here	762 Here	763 Here	764 Here	765 Here
VOICE TUBE SYSTEM		BENDIX AVIATION CORP., Mar. Div. Thru: Pacific Marine Supply Co	676 Canceled	677 Canceled	678 Canceled	679 Canceled	680 Canceled
VALVES, BRONZE SWING CHECK	DRAINAGE SYSTEM AT CHAIN LOCKERS	LUNKENHEIMER CO. THRU CHAS. H. HARDEN	4015 Here	4015 Here	4015 Here	4015 Here	4015 Here
VISES, MACHINIST	ENGINE ROOM WORK BENCH	REED MFG. CO.	4013 Here	4013 Here	4013 Here	4013 Here	4013 Here
VALVES, BRONZE REDUCING	STEAM & EXHAUST PIPING	FOSTER ENGR. CO.	4016 6-15-42	4016 6-15-42	4016 6-15-42	4016 6-15-42	4016 6-15-42
VALVES, ANGLE STOP & GLOBE	S. W. PIPING IN SEA CHESTS	JENKINS BROTHERS	4040 5-18-42 (?)	4040 5-18-42 (?)	4040 6-15-42	4040 6-15-42	4040 6-15-42
VALVES, SCREWED RELIEF	STEAM & EXHAUST PIPING	J. E. LONERGAN CO.	4011 Here	4011 Here	4011 Here	4011 Here	4011 Here
VOICE TUBE SYSTEM	INTERIOR COMMUNICATIONS (MECHANICAL)	BENDIX AVIATION CORP., Mar. Div. Thru Pacific Marine Supply Co.	4030 Cannot Determine	4030 Cannot Determine	4030 Cannot Determine	4030 Cannot Determine	4030 Cannot Determine
VALVES, BRONZE	L. O. SERVICE PIPING	LUNKENHEIMER	4201 No Promise	4201 No Promise	4201 No Promise	4201 No Promise	4201 No Promise
VALVES, RELIEF, NEEDLE	S. W. PIPING	LUNKENHEIMER	4130 No Promise	4130 No Promise	4130 No Promise	4130 No Promise	4130 No Promise
VALVES, RELIEF		J. E. LONGERGAN CO.	4181 6-13-42	4181 6-13-42	4181 6-13-42	4181 6-13-42	4181 6-13-42
VALVES, RELIEF	BILGE DRAINAGE AND BALLAST SYSTEM	J. E. LONGERGAN CO.	4197 No Promise	4197 No Promise	4197 No Promise	4197 No Promise	4197 No Promise
VALVES	HYDRAULICALLY OPERATED	ATWOOD & MORRILL CO.	3886 No Promise	3887 No Promise	3888 No Promise	3889 No Promise	3890 No Promise

ITEM	USED FOR	VENDOR	HULL 12	HULL 13	HULL 14	HULL 15	HULL 16
WHISTLE, STEAM		LESLIE COMPANY	711 Here Short Spares	712 Here Short Spares	713 7-15-42	714 8-15-42	715 8-15-42
WHISTLE PULL EQUIPMENT		BENDIX AVIATION CORP., Mar. Div. Thur: Pacific Marine Supply Co	3511 No Promise	3512 No Promise	3513 No Promise	3514 No Promise	3515 No Promise
WINCH, BOAT		LIDGERWOOD MFG. CO.	3396 July	3397 August	3398 July	3399 August	3400 August
WINCHES, CARGO		AMERICAN HOIST & DERRICK	671 6-10-42	672 6-30-42	673 6-30-42	674 6-30-42	675 6-30-42
WINCH, WARPING		AMERICAN HOIST & DERRICK	3596 8-1-42	3597 9-1-42	3598 9-15-42	3599 9-15-42	3600 11-15-42
WINDLASS, ANCHOR		HYDE WINDLASS COMPANY	3311 6-1-42	3312 6-1-42	3313 8-1-42	3314 8-1-42	3315 8-1-42
WIPERS, ELECTRIC WINDOW		KEARFOTT ENGINEER-CO. THRU: R. L. CUN-NINGHAM CO.	541 5-19-42	542 5-19-42	543 7-15-42	544 7-28-42	545 7-28-42
WIRING SUPPLIES, BOXES, SWITCHES, RECEPTACLES		RUSSELL & STOLL CO.	3486 5-19-42	3487 5-19-42	3488 6-15-42	3489 6-15-42	3490 6-15-42

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ITEM	USED FOR	VENDOR	HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL
MAIN BOILERS 5		FOSTER WHEELER CORP.	1093 See Below	1094 See Below	1095 See Below	1096 See Below	1097 See Below	1098 See Below	1174 See Below	1174 See Below	1174 See Below
CASING			Here	Here	Here	Here	Here	Here	Here	Here	Here
DRUMS			Here	Here	Here	Here	Here	Here	Here	Here	Here
ECONOMIZERS 23			Here	Here	Here	Here	Here	Here	Here	Here	Here
SUPERHEATERS			Here	Here	Here	Here	Here	Here	Here	Here	Here
SOOT BLOWERS			Here	Here	Here	Here	Here	Here	Here	Here	Here
SMOKE DETECTORS			Here	Here	Here	Here	Here	Here	Here	Here	Here
FEED WATER REGULATOR			Here	Here	Here	Here	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled
WATER WALLS			Here	Here	Here	Here	Here	Here	Here	Here	5-18-42
SUBCONTRACTOR'S MATERIAL			95% of Subcontractor's Material Here		Here	Here	Here	Here	Here	Here	Part Here
COMBUSTION CONTROL UNIT			Here	Here	Here	Here	Here	Here	Here	Here	Here
BERTHS CREWS		NATIONAL BED SPRING COMPANY	No Order	No Order	6531 Here	6532 Here	6533 Here	6534 Here	1510 Here	1510 Here	1510 Here
BERTHS	TROOP BERTHING	ALCO FABRICATING CORPORATION	7995 No Promise	7996 No Promise	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Requi

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8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL 19	HULL 20	HULL 21	HULL 22	HULL 23	HULL 24	HULL 25
	1096 See Below	1097 See Below	1098 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below	1174 See Below
	Here	Here	Here	Here	Here	Here	Here	Here	Here	Bal. 5-22-42	Bal. 5-22-42	6-1-42
	Here	Here	Here	Here	Here	Here	Here	Here	Here	5-22-42	5-22-42	6-25-42
	Here	Here	Here	Here	Here	Here	Here	Here	Here	5-22-42	5-22-42	Cannot Determine
	Here	Here	Here	Here	Here	Here	Here	Here	Here	Part Here	Part Here	Cannot Determine
	Here	Here	Here	Here	Here	Here	Here	Here	Here	Here	Here	Cannot Determine
	Here	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled	Cancelled
	Here	Here	Here	Here	Here	5-18-42	5-18-42	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine	Cannot Determine
	Here	Here	Here	Here	Here	Part Here	Part Here	Part Here	Part Here	Part Here	Part Here	Part Here
	Here	Here	Here	Here	Here	Here	Here	Here	Here	Here	Here	7-10-42
	6532 Here	6533 Here	6534 Here	1510 Here	1510 Here	1510 Here	1510 Here	1510 Here	1510 Here	1510 Here	1510 Here	1510 Here
	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required

ITEM	USED FOR	VENDOR	HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11
BANDS, HATCH COVER END		STEWART DICKSON & CO.	6607 Here	6608 Here	1619 Here	1620 Here	1621 Here	1622 Here
BATTERIES, STORAGE	EMERGENCY LIGHTING	PHILCO CORP.	3597 Here	3598 Here	See Below	See Below	See Below	See Below
BATTERIES, STORAGE 152		PRICE BATTERY CORP.	See Above	See Above	3531 Here	3532 Here	3533 Here	3534 Here
BEARINGS, LINE SHAFT 75		HOWARTH PIVOTED BEARINGS CO.	1099 Here	1100 Rev. Here	1101 Rev. Here	1102 Rev. Here	1103 Here	1104 Here
BEARINGS LINE SHAFT		DODGE MANUFACTURING CO.	See Above	See Above	See Above	See Above	See Above	See Above
BELL 8" & CONTACT MAKERS 144		BENDIX AVIATION CORP.	1541 Here	1542 Here	1543 Here	1544 Here	1545 Here	1546 Here
BITTS, MOORING 12" and 14" 43		BY-PRODUCTS STEEL CORP.	1444 Here	1445 Here	1446 Here	1447 Here	1448 Here	1449 Here
BLINKER LIGHTS AND KEYS 167		BENDIX AVIATION CORP.	3341 Keys Here Short Lites	3342 Keys Here Short Lites	3343 Here	3344 Here	3345 Keys Here Short Lites	3346 Part Here
BOILER WATER TESTING CABINET	STEAM GEN. EQUIPMENT	BULL & ROBERTS	6571 Here	6572 Here	6573 Here	6574 Here	6575 Here	6576 Here
BOOMS, MASTS AND KINGPSTS 72 & 111		PUGET SOUND MACHINERY DEPOT	5833 6-15-42	5834 6-15-42	3757 Here	3758 Here	3759 Here	3760 Part Here
BOOMS, CARGO 72 & 111		PUGET SOUND MACHINERY DEPOT	4784 6-15-42	4785 6-15-42	Not Required	Not Required	Not Required	Not Required
BOXES, STUFFING	HIGH LEVEL ALARM FOR F. O. TANKS	UEHLING INSTRUMENT CO.	6925 Here	6926 Here	6461 Here	6462 Here	6463 Here	6464 Here
BREATHING APPARATUS 165		MINE SAFETY APPLIANCES CO.	1159 Here	1160 Here	1161 Here	1162 Here	1163 Here	1164 Here
BURNERS, FUEL OIL 77		TODD COMBUSTION EQUIPMENT	1315 Here	1316 Here	1317 Here	1318 Here	1319 Here	1320 Here
BUSHINGS, MICARTA	STERN FRAME	MARWOOD, LTD.	4262 Here	4263 Here	4264 Here	4265 Here	4266 Here	4267 Here
*BUSHINGS & ROPE GUARD	STERN TUBE	DRAVIS ENGINEERING	1683 Here	1684 Here	1685 Here	1686 Here	1687 Here	1688 Here
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HULL 17	HULL 18	HULL 19	HULL 20	HULL 21	HULL 22	HULL 23	HULL 24	HULL 25
532; 1067 Here	532; 1067 Here	532; 1067 Here	532; 1067 Here	532; 1067 Here	532; 1067 Part Here Bal. 5-20-42	532; 1067 Part Here Bal. 5-20-42	532; 1067 Part Here Bal. 5-20-42	532; 1067 Part Here Bal. 5-20-42
See Below	See Below	See Below	See Below	See Below	See Below	See Below	See Below	See Below
1062 Here	1062 Here	1062 Here	1062 Here	1062 Here	1062 Here	1062 Here	1062 Here	1062 Here
518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine	518 Cannot Determine
1574 Here; Ordered for Hull 43	1575 Here; Ordered for Hull 44	See Above	See Above	See Above	See Above	See Above	See Above	See Above
1239 Here	1239 Here	1239 Part Here	1239 Part Here	1239 Part Here	1239 Part Here	1239 Part Here	1239 No Promise	1239 No Promise
1083 Here	1083 Here	1083 Here	1083 Here	1083 Here	1083 Here	1083 Here	1083 Here	1083 Here
1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise	1240 No Promise
1516 Here	1516 Here	1516 Here	1516 Here	1516 Here	1516 Here	1516 Here	1516 Here	1516 Here
511 Part Here	511 Part Here	511 Part Here	511 Here	511 Part Here	511 Part Here	511 Part Here	511 Part Here	511 Here
Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
1498 Rev. Here	1498 Rev. Here	1498 Rev. Here	1498 Rev. Here	1498 Rev Here	1498 Rev. Here	1498 Rev. Here	1498 Rev. Here	1498 Rev. Here
1254 Here	1254 Here	1254 Here	1254 Here	1254 Here	1254 Here	1254 Here	1254 Here	1254 Here
1149 Part Here Bal. 5-18-42	1149 Part Here Bal. 5-18-42	1149 Part Here Bal. 5-18-42	1149 Part Here Bal. 5-18-42	1149 Part Here	1149 Part Here	1149 Part Here	1149 Part Here	1149 Part Here
1109 Here	1109 Here	1109 Here	1109 Here	1109 Here	1109 Here	1109 Here	1109 Here	1109 Here
1032 Here	1032 Here	1032 Dravo Will Advise	1032 Dravo Will Advise	1032 Dravo Will Advise	1032 Dravo Will Advise	1032 Dravo Will Advise	1032 Dravo Will Advise	1032 Dravo Will Advise

Frm M-100
"LEGEND" Symbols indicate if DATE is RETARDED or ADVANCED

SEATTLE-TACOMA SHIPBUILDING CORP. - TA

—Advanced —Retarded

Report No. 35 — May 16,

ITEM	USED FOR	VENDOR	HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11
159 AIRPORTS		ROSTAND MANUFACTURING CO.	1371 REV. Part Here Bal. 5-25-42	1372 REV. Part Here Bal. 5-25-42	1373 Here	1374 Here	1375 Here	1376 Here
105 ANCHORS		C. J. HENDRY CO.	1081 Here	1082 Here	1083 Here	1084 Here	1085 Here	1086 Here
ANNOUNCING SYSTEM (GEN. AND LIFEBOAT)		C. C. GALBRAITH & SON	5803 REV. Part Here Bal. 5-18-42	5804 REV. Part Here Bal. 5-18-42	Not Required	Not Required	Not Required	Not Required
ANEMOSTAT AIR DIFFUSERS	VENTILATION	ANEMOSTAT CORP. THRU LANGDON FAULKNER CO.	No Order	No Order	6841 Part Here Bal. 5-23-42	6842 Part Here Bal. 5-23-42	6843 Part Here Bal. 5-23-42	5844 Part Here Bal. 5-23-42
ASPIRATOR SPECIAL AIR	COMPRESSED AIR SYSTEM	SCHUTTE-KOERTING	No Order	No Order	7721 Here	7722 Here	7723 Here	7724 Here

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EXHIBIT (T)

COMA DIVISION

1942

LATEST ESTIMATED ARRIVAL DATES

HULL 17	HULL 18	HULL 19	HULL 20	HULL 21	HULL 22	HULL 23	HULL 24	HULL 25
1078 Here	1078 Here	1078 Here	1078 Here	1078 Here	1078 Here	1078 Here	1078 Here	1078 Here
1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here
Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
1544 Part Here	1544 Part Here	1544 Part Here Bal. 5-23-42	1544 Part Here	1544 5-23-42	1544 5-23-42	1544 No Promise	1544 No Promise	1544 No Promise
1580 Here	1580 Here	1580 Here	1580 Here	1580 Here	1580 Here	1580 Here	1580 Here	1580 Here

ITEM	USED FOR	VENDOR	HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL
CALL BELL SYSTEM 143		BENDIX AVIATION CORP.	1607 Part Here. Bal. Cannot Deter.	1608 Part Here. Bal. Cannot Deter.	1609 Part Here Short Panels	1610 Part Here Short Panels	1611 Part Here. Bal. Cannot Deter.	1612 Part Here. Bal Cannot Deter.	1264 Part Here	[illegible]	1264 Part Here
CAPSTANS 86		MARKEY MACHINERY CO.	1564 Here Short Tools	1565 Here Short Tools	1566 Here Short Tools	1567 Here Short Tools	1568 Here Short Tools	1569 Here Short Tools	528 Part Here. Bal Cannot Deter.	Bal. w.	528 Part Here. Cannot Det
CARGOCAIRE UNIT 38		CARGOCAIRE ENG. CORP.	Not Required	Not Required	1003 Here	1004 Here	1005 Here	1006 Here	1234 Here	[illegible]	1234 Here
CHAINS FOR ANCHORS 105		C. J. HENDRY CO.	1081 Here	1082 Here	1083 Here	1084 Here	1085 Here	1086 Here	1121 Here	[illegible]	1121 Here
CHOCKS AND BITTS 2 & 3 ROLLER MOORING 41, 42, 43		PACIFIC IRON AND STEEL	1519 Here	1520 Here	1521 Here	1522 Here	1523 Here	1524 Here	1071 Here	[illegible]	1071 Here
CLEAR VISION DEVICE 162		BENDIX AVIATION CORP.	1623 Part Here	1624 Cannot Determine	1625 Cannot Determine	1626 Part Here	1627 Cannot Determine	1628 Cannot Determine	1242 No Premise	[illegible]	1242 No Premis
COMPRESSORS, SHIPS SERVICE, AIR RECEIVER 84		INGERSOLL-RAND	1450 Here	1451 Here	1452 Here	1453 Here	1454 Here	1455 Here	1426 Part Here	[illegible]	1426 Part Here
CONDENSERS, AUXILIARY 12		ALLIS-CHALMERS MFG. CO.	1279 Here	1280 Here	1281 Here	1282 Here	1283 Here	1284 Here	1092 Short Spares Cond. Here	[illegible]	1092 Here
CONDENSERS, MAIN 11		ALLIS-CHALMERS MFG. CO.	1017 Here	1018 Part Here	1019 Here	1020 Part Here	1021 Here	1022 Here	1098 Here	[illegible]	1098 Here
CONDENSER, GLAND LEAK-OFF PARACOIL 92		DAVIS ENGINEERING	6881 Here	6882 Here	6883 Here	6184 Here	6885 Here	6886 Here	1552 Here	[illegible]	1552 Here
CONTACTOR	ACCOMMODATION FANS	CUTLER-HAMMER	Not Required	Not Required	6226 Here	6227 Here	6228 Here	6229 Here	1468 Here	[illegible]	1468 Here
COOLERS, LUBE OIL 26		GRISCOM-RUSSELL CO.	3529 Here	3530 Here	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	[illegible]	See Cond. Serv
*COOLERS, DRAIN & HEATER FEED WATER 45 & 81		CONDENSER SERVICE & ENGINEERING CO.	No Order	No Order	3629 Here	3630 Here	3631 Here	3632 Here	1278 Part Here	[illegible]	1278 Coolers Here Heaters 5-12-4
COOLERS, LUBE OIL 26		CONDENSER SERVICE & ENGINEERING CO.	See Griscom-Russell	See Griscom-Russell	5967 Here	5968 Here	5969 Here	5970 Here	1551 Here Short Spares	[illegible]	1551 Here Short Spare
COOLERS, CONTAM., WATER DRAIN 93	CONTAMINATED SYSTEM	CONDENSER SERVICE & ENGINEERING CO.	See Davis Eng. Corp.	See Davis Eng. Corp.	5971 Here	5972 Here	5973 Here	5974 Here	1485 Here	[illegible]	1485 Here
CLEAN OUT HOUSING	FUEL OIL BURNERS	TODD COMBUSTION EQUIPMENT, INC.	7847 5-17-42	7848 5-17-42	7849 5-17-42	7850 5-17-42	7851 5-17-42	7852 5-17-42	No Order	No [illegible]	No Order

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HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL 19	HULL 20	HULL 21	HULL 22	HULL 23	HULL 24	HULL 25
507 rt Here. Bal. annot Deter.	1608 Part Here. Bal. Cannot Deter.	1609 Part Here Short Panels	1610 Part Here Short Panels	1611 Part Here. Bal. Cannot Deter.	1612 PartHere. Bal. Canot Deter.	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here	1264 Part Here
564 ere hort Tools	ools	1566 Here Short Tools	1567 Here Short Tools	1568 Here Short Tools	1569 Here Short Tools	528 Part Here. Bal Cannot Deter.	528 Part Here. Bal Cannot Deter.	528 Part Here. Bal. Cannot Deter.	528 Part Here	528 Part Here	528 Part Here	528 Part Here	528 Part Here	528 Part Here
ot equired		1003 Here	1004 Here	1005 Here	1006 Here	1234 Here	1234 Here	1234 Here	1234 Here	1234 Here	1234 Here	1234 Here	1234 Here	1234 Here
081 lere		1083 Here	1084 Here	1085 Here	1086 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here	1121 Here
519 lere		1521 Here	1522 Here	1523 Here	1524 Here	1071 Here	1071 Here	1071 Here	1071 Here	1071 No Promise	1071 No Promise	1071 No Promise	1071 No Promise	1071 No Promise
623 art Here		1625 Cannot Determine	1626 Part Here	1627 Cannot Determine	1628 Cannot Determine	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise	1242 No Promise
1450 Here		1452 Here	1453 Here	1454 Here	1455 Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here	1426 Part Here
1279 Here		1281 Here	1282 Here	1283 Here	1284 Here	1092 Short Spares Cond. Here	1092 Here	1092 Here	1092 Here	1092 Here	1092 Here	1092 Here	1092 Here	1092 Part Here
1017 Here	re	1019 Here	1020 Part Here	1021 Here	1022 Here	1098 Here	1098 Part Here Short Spares	1098 Here	1098 Here	1098 Here	1098 Here	1098 Bal. 5-15-42 Spares Here	1098 Spares Here	1098 Part Here
6881 Here		6883 Here	6884 Here	6885 Here	6886 Here	1552 Here	1552 Here	1552 Here	1552 Here	1552 Condenser Here Short Spares	1552 5-24-42	1552 6-15-42	1552 6-15-42	1552 6-15-42
Not Required	quired	6226 Here	6227 Here	6228 Here	6229 Here	1468 Here	1468 Here	1468 Here	1468 Here	1468 Here	1468 Here	1468 Here	1468 Here	1468 Here
3529 Here		See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.	See Cond. Serv.
No Order	w	3629 Here	3630 Here	3631 Here	3632 Here	1278 Part Here	1278 Coolers Here Heaters 5-12-42	1278 Coolers Here Heaters 5-12-42	1278 Coolers Here Heaters 5-22-42 Spares 5-20-42	1278 Coolers Here Heaters 5-22-42 Spares 5-20-42	1278 Coolers Here Heaters 6-1-42 Spares 5-20-42	1278 Coolers Here Heaters 6-1-42 Spares 5-20-42	1278 Spares 5-20-42	1278 Spares 5-20-42
See Griscom-Russell		5967 Here	5968 Here	5969 Here	5970 Here	1551 Here Short Spares	1551 Here Short Spares	1551 Here Short Spares	1551 Here Short Spares	1551 5-18-42	1551 5-18-42	1551 5-18-42	1551 5-18-42	1551 5-18-42
See Davis Eng. Corp.	g-	5971 Here	5972 Here	5973 Here	5974 Here	1485 Here	1485 Here	1485 Here	1485 Here Short Tools	1485 Here Short Tools	1485 Here Short Tools	1485 5-18-42	1485 5-18-42	1485 5-30-42
7847 5-17-42		7849 5-17-42	7850 5-17-42	7851 5-17-42	7852 5-17-42	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order

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ITEM	USED FOR	VENDOR	HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL 19
COOLERS, CONTAM., WATER DRAIN 93	CONTAMINATED SYSTEM	DAVIS ENGINEERING * CORP.	3639 Here	3640 Here	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	[illegible]	See Cond. Service
COOLER, PARACOIL FUEL OIL 112	F. O. SERVICE (RETURN)	DAVIS ENGINEERING CORP.	No Order	Here No Order Written Yet	6735 REV. Part Here	6736 REV. Part Here	6737 REV. Part Here	6738 REV. Part Here	No Order	[illegible]	No Order
CONTROLS, VENTILATING, THERMOSTATIC SYSTEM	VENTILATION	JOHNSON SERVICE CO.	7614 Here	7615 Part Here	6415 Here	6416 Here	6417 Here	6418 Here	1562 Here	[illegible]	1562 Here
"D"											
DAVITS & FALLS 106	LIFE SAVING EQUIPMENT	LANDLEY CO.	Ordered With Lifeboats	Ordered With Lifeboats	1269 Here	1270 Cancelled	1271 Here	1272 Here	1577 Part Here	[illegible]	1577 Part Here
DAVITS AND FALLS	LIFE SAVING EQUIPMENT	LANE LIFEBOAT AND DAVIT CORP.	See Above	See Above	See Above	7705 No Promise	7706 No Promise	7707 No Promise	See Above	[illegible]	See Above
*DISTILLERS & EVAPORATORS 53 & 54		THE GRISCOM-RUSSEL CO.	1434 Here	1435 Here	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	[illegible]	See Lummus
*DISTILLERS & EVAPORATORS, S. W. 53 & 54		THE LUMMUS CO.	See Griscom-Russell	See Griscom-Russell	1436 Here	1437 Here	1438 Here	1439 Here	1226 Here Short Gauges	[illegible]	1226 Here Short Drain
DOORS, STEEL GASTIGHT & AIRTIGHT 133		GUNDERSON BROS.	6359 Here	6360 Here	3337 Here	3338 Here	3339 Here	3340 Here	1095 Here	[illegible]	1095 Here
DOORS, W. T. 13 & 14		GUNDERSON BROS.	1297 Here	1298 Here	1299 Here	1300 Here	1301 Here	1302 Here	1276 Here	[illegible]	1276 Here
DOORS, W. T. 13 & 14		GUNDERSON BROS.	6647 Here	6648 Here	No Order	No Order	No Order	No Order	No Order	[illegible]	No Order
DOORS, W. T. 13 & 14		HEINTZ MFG. CO	6279 6-1-42	6280 6-1-42	No Order	No Order	No Order	No Order	No Order	[illegible]	No Order
DOORS W. T. STEEL	PYROTECHNIC LOCKER	GUNDERSON BROS.	7703 Here	7704 Here	No Order	No Order	No Order	No Order	No Order	[illegible]	No Order
DRILL PRESS 125		STAR MACHINERY CO.	1183 Here	1184 Here	1185 Press & Motors Here. Sh. Sprs.	1186 Press & Motors Here Sh. Sprs.	1187 Here	1188 Here	1147 Drills Here Short Motors	[illegible]	1147 5-18-42
DRAFT GAUGES	UPTAKES & BURNER BOXES	ENERGY CONTROL CO.	6638 Here	6639 Here	6641 Here	6642 Here	6643 Here	6644 Here	1543 Here	[illegible]	1543 Here
DUMBWAITERS 132		SEDGWICK MACHINE WORKS	3347 Here	3348 Here	1635 Here	1636 Here	1637 Here	1638 Here	1068 Here	[illegible]	1068 Here
DUST CATCHERS		ENGINEERING SPECIALTY CO.	3837 Here	3838 Here	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
DUMB WAITER CAR	AMMUNITION HOIST	MAINE STEEL INCORPORATED	7644 Here	7645 Here	No Order	No Order	No Order	No Order	No Order	No Order	No Order

HULL 6	HULL 7	HULL 8	HULL 9	HULL 10	HULL 11	HULL 17	HULL 18	HULL 19	HULL 20	HULL 21	HULL 22	HULL 23	HULL 24	HULL 25
	3640 Here	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service	See Cond. Service
rder		6735 REV. Part Here	6736 REV. Part Here	6737 REV. Part Here	6738 REV. Part Here	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order
		6415 Here	6416 Here	6417 Here	6418 Here	1562 Here	1562 Here	1562 Here	1562 Here	1562 Here	1562 Here	1562 Here	1562 Here	1562 Here
red With boats		1269 Here	1270 Cancelled	1271 Here	1272 Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here	1577 Part Here
Above		See Above	7705 No Promise	7706 No Promise	7707 No Promise	See Above	See Above	See Above	See Above	1579 Cannot Determine	1579 Cannot Determine	1579 5-18-42	1579 5-18-42	1579 5-18-42
		See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus	See Lummus
com- sell		1436 Here	1437 Here	1438 Here	1439 Here	1226 Here Short Gauges	1226 Here Short Gauges	1226 Here Short Drainers	1226 Here Short Drainers	1226 Here Short Drainers	1226 Here Short Drainers	1226 Here Short Drainers	1226 Here Short Drainers	1226 Part Here
		3337 Here	3338 Here	3339 Here	3340 Here	1095 Here	1095 Here	1095 Here	1095 Here	1095 Here	1095 Here	1095 Here	1095 Here	1095 Here
		1299 Here	1300 Here	1301 Here	1302 Here	1276 Here	1276 Here	1276 Here	1276 Here	1276 Here	1276 Here	1276 Here	1276 Here	1276 Here
		No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order
79 1-42		No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order
03		No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order
83		1185 Press & Motors Here. Sh. Spns.	1186 Press & Motors Here Sh. Spns.	1187 Here	1188 Here	1147 Drills Here Short Motors	1147 Drill Press Here Short Motors	1147 5-18-42	1147 5-18-42	1147 Cannot Determine	1147 Cannot Determine	1147 Cannot Determine	1147 Cannot Determine	1147 Cannot Determine
38		6641 Here	6642 Here	6643 Here	6644 Here	1543 Here	1543 Here	1543 Here	1543 Here	1543 Here	1543 Here	1543 6-25-42	1543 6-25-42	1543 6-25-42
347		1635 Here	1636 Here	1637 Here	1638 Here	1068 Here	1068 Here	1068 Here	1068 Here	1068 Here	1068 Here	1068 Here	1068 Here	1068 Here
837	Here	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
7644	7645 Here	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order	No Order

DECLASSIFIED PER EXECUTIVE ORDER 12356, SECTION 3.3, NND PROJECT NUMBER NND 760062 DATE 10/27/94

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SCHEDULE "A"

Type 850-G Oxygen Plant Installation
Tacoma, Washington
(Preliminary Estimates)

To be provided for by the Maritime Commission.

BUILDING COSTS

Foundations, pits, trenches	$16,000.00	
Superstructure	28,620.00	
Building Services	15,000.00	
Survey	1,000.00	
Driveway, fence, floodlights	7,000.00	
		$ 67,620.00

FACILITIES COSTS (INSTALLED)

Air Compressor Installation	$51,930.00	
L.P. Oxygen Storage	9,900.00	
H.P. Oxygen Storage	43,400.00	
General Process Piping	7,250.00	
Sub-station	15,460.00	
Equipment foundations, wiring, bolts, motors and other items not supplied by Airco	35,775.00	
Standard Plant Tools	7,000.00	
Water Cooling System	10,245.00	
		180,960.00

ENGINEERING EXPENSE

Building Plans, Specifications and Supervision	$11,500.00	
Facilities Installation	3,900.00	
		15,400.00
		$263,980.00

Based on good soil condition (no piling).
Does not include cost of property.

3-13-42